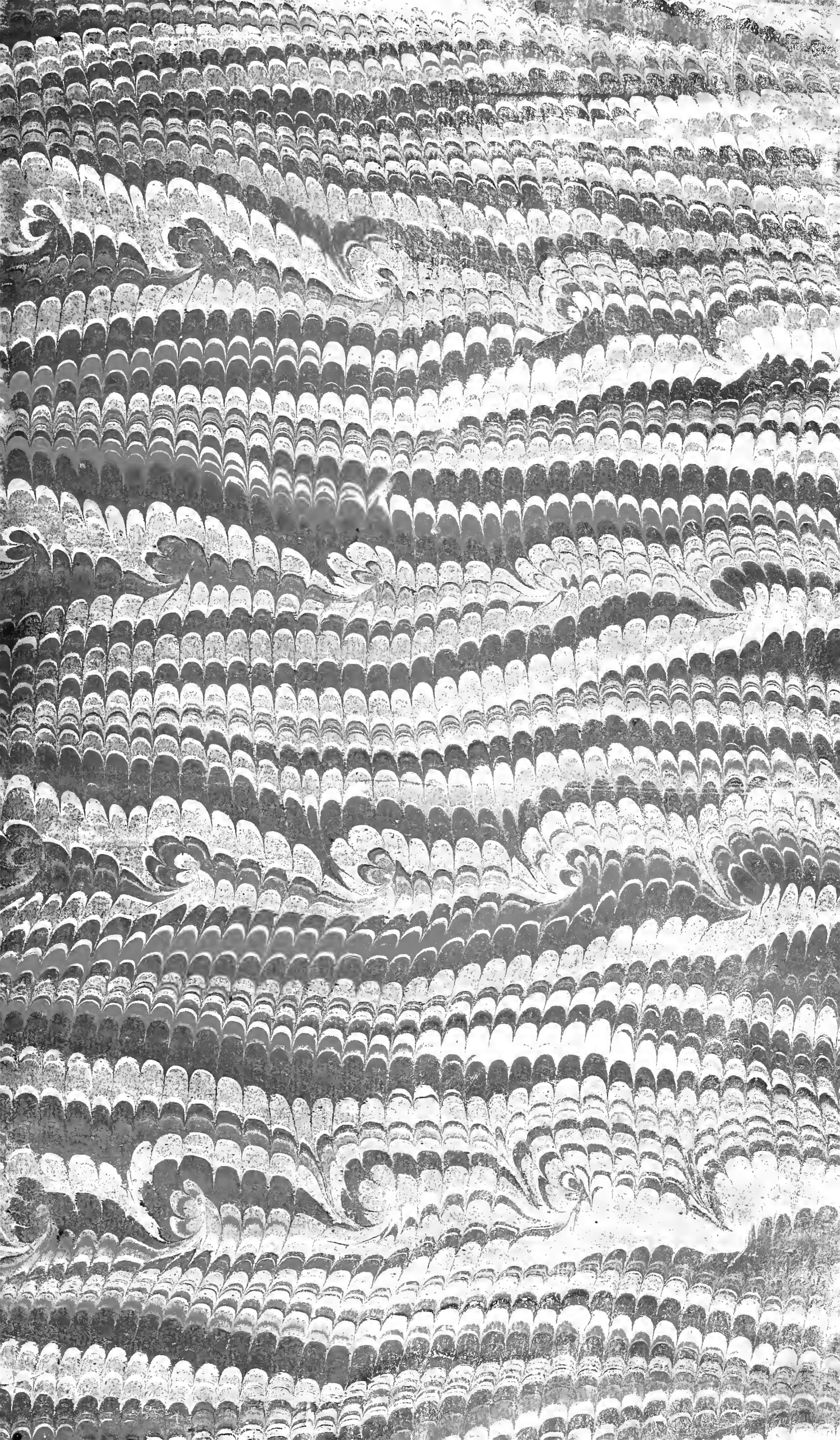


1883

GLASGOW SCHOOL OF ART LIBRARY
055 594

BOOK STORE

Glasgow School of Art Library

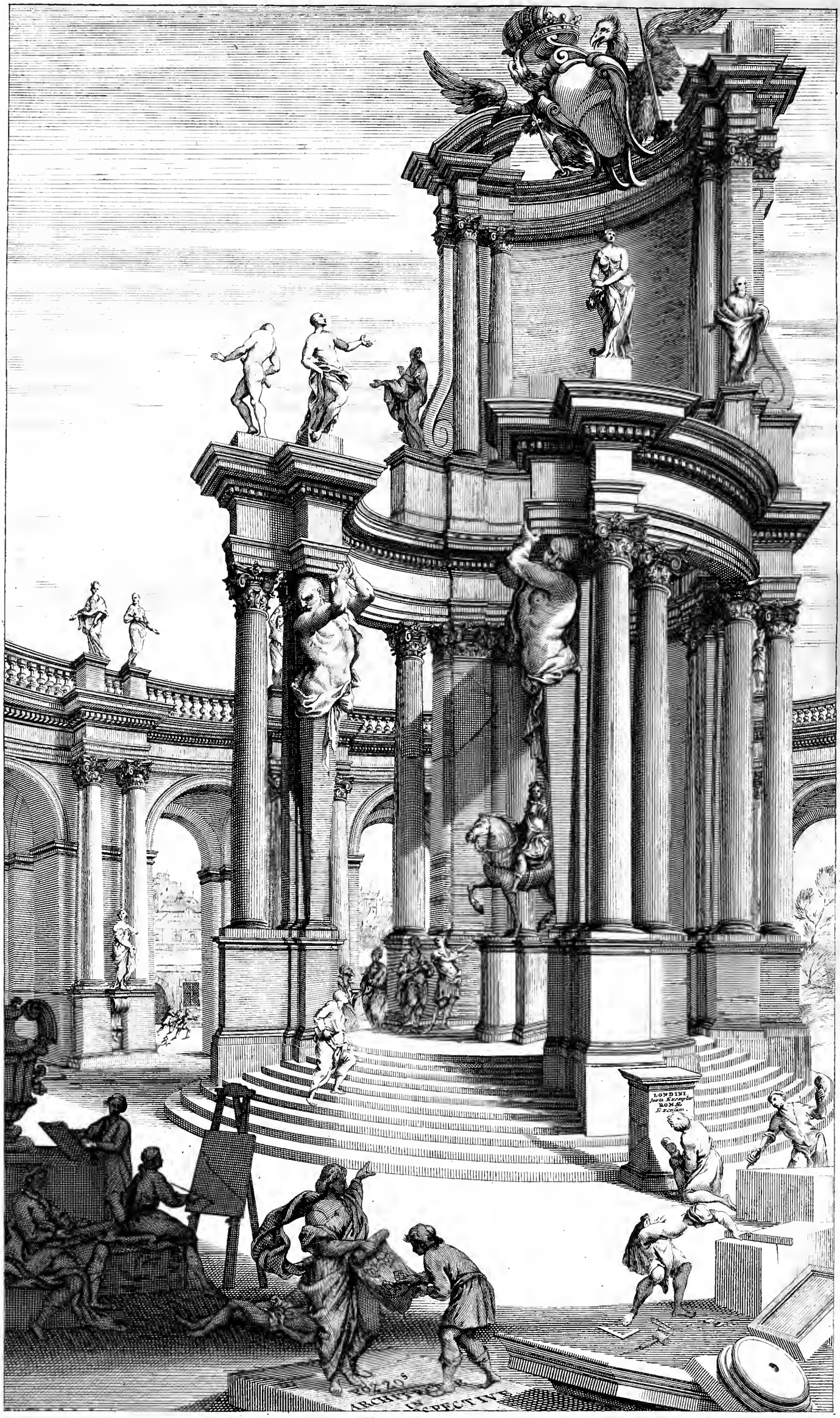
Book Number	1883
Subject Number	742
Author/ Heading	POZZO

G S A
LIBRARY

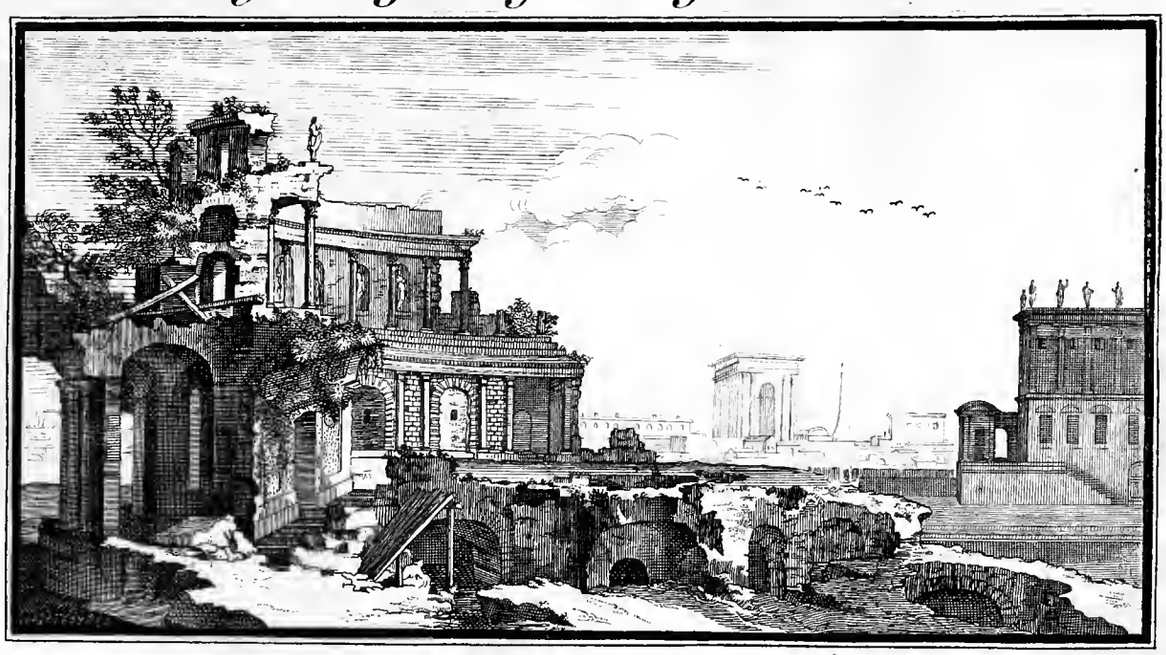
G S A
LIBRARY

Digitized by the Internet Archive
in 2011 with funding from
Glasgow School of Art Library

http://www.archive.org/details/rulesexamplesofp00pozz

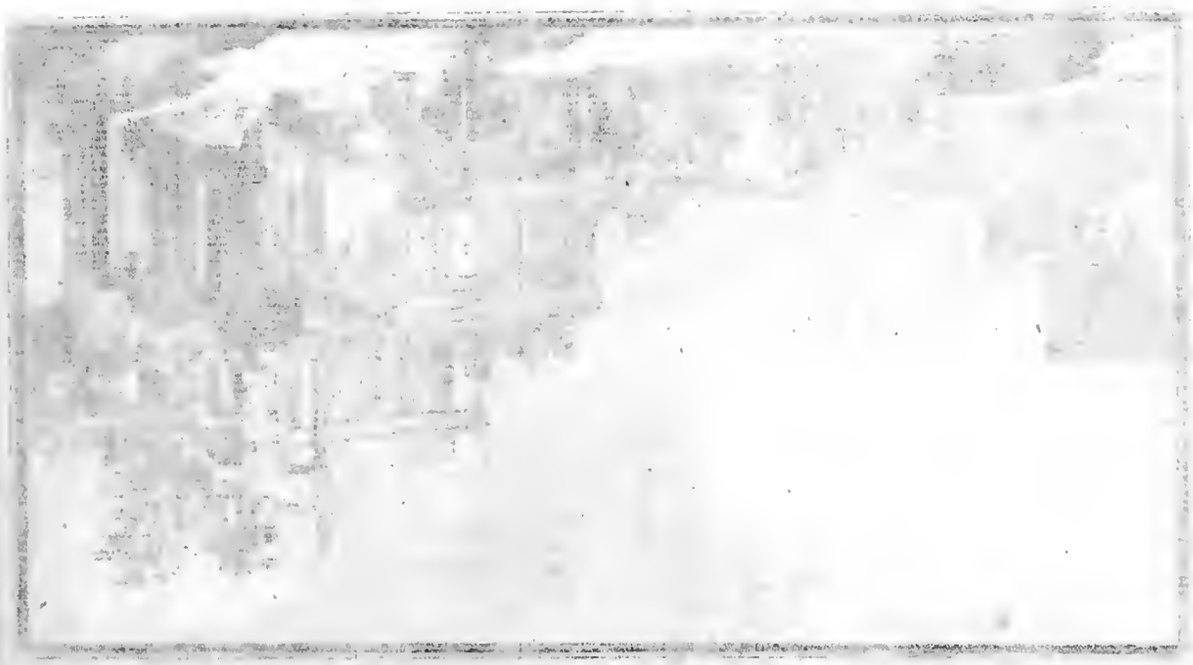

LONDINI
Iuris Exemplar
ROMÆ
Excusum.

Rules and Examples of
PERSPECTIVE
PROPER FOR
Painters and Architects, etc.
In English and Latin:
Containing a most easie and expeditious Method to
DELINEATE in PERSPECTIVE
All DESIGNS relating to ARCHITECTURE,
AFTER A NEW MANNER,
Wholly free from the Confusion of Occult Lines:
BY THAT GREAT MASTER THEREOF,
ANDREA POZZO, *Soc. Jes.*
Engraven in 105 ample folio Plates, and adorn'd with 200 Initial Letters to the Explanatory Discourses: Printed from Copper-Plates *only best Paper*
By John Sturt.
Done into English from the Original Printed at Rome 1693 in Lat. and Ital.
By Mr John James of Greenwich.



LONDON:

PRINTED for J. Senex and R. Gosling *in Fleetstreet;* W. Innys *in St. Pauls Church Yard;* J. Osborn and T. Longman *in Paternoster Row.*

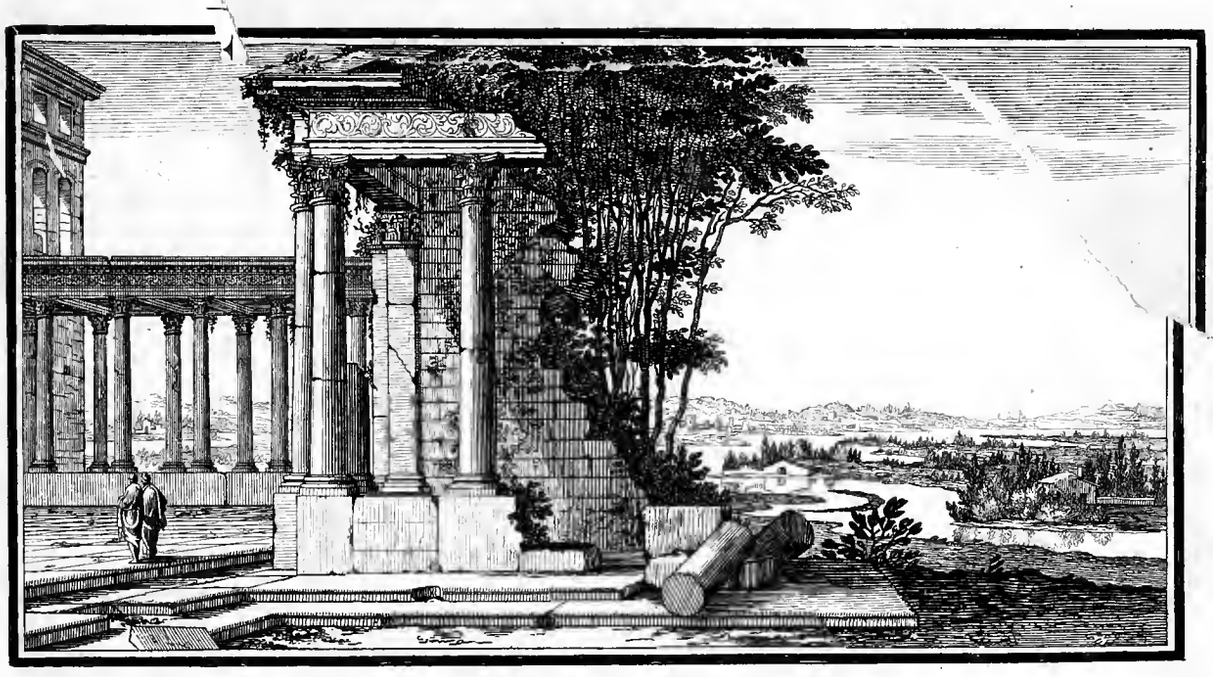


PERSPECTIVA
PICTORUM
ET
ARCHITECTORUM,

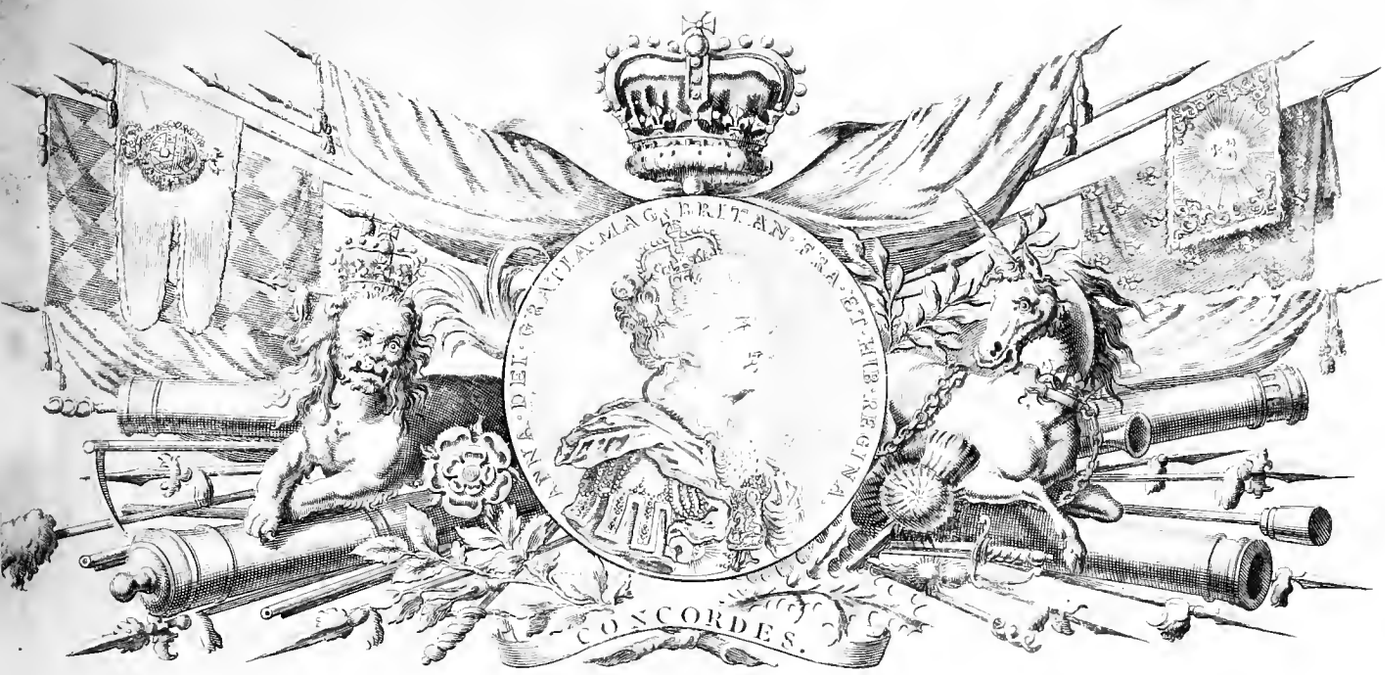
ANDREÆ PUTEI,

E SOCIETATE JESU.

In quâ docetur Modus expeditissimus Delineandi
Optic è omnia quę pertinent ad Architecturam.



LONDINI:
Juxta Exemplar ROMÆ excusum, MDCXCIII.
Ex Sculpturâ Joannis Sturt, et ejusd. Curâ adornata:
SUMPTIBUS J. Senex, R. Gosling, G. Innys, J. Osborn et T. Longman.

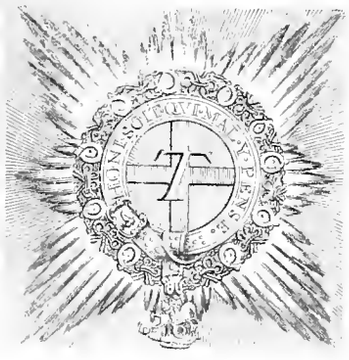


TO

Her moſt Sacred Majeſty,

QUEEN ANNE.

May it pleaſe your Majeſty!



HE Condeſcenſion of the late Emperor of **Germany** *to patronize this* WORK *in the* **Original**, *could not have incited me to the Preſumption of laying the* **Tranſlation** *at Your Royal Feet; had not the* Art *of* PERSPECTIVE, *of which it treats, been ſo nearly ally'd*

to the noble Arts of PAINTING *and* ARCHITECTURE. *The* First *of these your Majesty has been pleas'd to honour, as well in expressing a Satisfaction with the Performances, as in extending Your Royal Munificence to that great Master thereof, Signor* Verrio.

And altho Affairs of higher Consequence have hitherto deferr'd your Majesty's Commands for Raising WHITE-HALL *from its Ruins; yet has not* Architecture *been without Encouragement, under* Your Majesty's *Most Auspicious Reign: Witness the great Dispatch lately given to those Noble Fabricks of St.* PAUL's, Greenwich-*Hospital, and* Blenheim.

These seem to presage, that a Time is coming, when thro' the Blessing of Peace, and the happy Influence of Your Majesty's Government, WHITE-HALL *shall become a Structure worthy its Great* Restorer, *and its Name as much Celebrated among* Palaces, *as Your Royal Vertues are Illustrious among* Princes: *When Your Majesty's Subjects shall exert themselves as much to their Country's Honour, in the* Arts *of* Design, *and* Civil Architecture, *as they have already done in the* Art Military, *and* Personal Valour.

Preliminary to such Happy Season, I presume this Art of Perspective made Practicable, *may not be improper; being One of the most Useful, tho hitherto the*

the most Obscure and Confus'd, of all the Lineary Arts. I, therefore, with all Submission, beg Leave to supplicate Your Majesty's Pardon for this Address, and Your Gracious Protection of this Specimen of English *Graving; to which, if* Your Majesty *vouchsafe* Your *Royal* Patronage, *it will effectually animate the future Endeavours of,*

May it please your Majesty!

Your Most Obedient Subject,

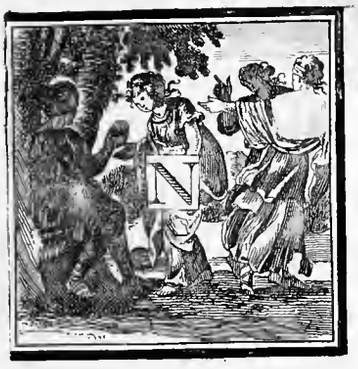
J. Sturt.

THE GLASGOW SCHOOL OF ART LIBRARY

PREFACE

TO THIS

TRANSLATION.



NOTWITHSTANDING the *Art* of PERSPECTIVE muſt be acknowledg'd ſo highly and indiſpenſably requiſite in the Practice of *Painting*, *Architecture*, and *Sculpture*; that in the Firſt of theſe eſpecially, nothing commendable can be perform'd without its Aſſiſtance: Yet ſuch have been the Difficulties and Obſcurities met with in the firſt Attempts, and ſo great the Perplexity and Confuſion of Lines in the Practice thereof; that the beſt Inſtructions, hitherto made *Engliſh*, have invited very few to ſuch a Proſecution of this Study, as might render their Performances of this kind, truly valuable.

'TIS ſomething unaccountable, that, among ſo many learned Perſons as have handled this Subject, *Prieſts*, *Architects*, and *Painters*; very few, if any of them, have given Directions proper for ſhunning that Diſorder and Confuſion of Lines, which, in moſt Inſtances, muſt neceſſarily attend the Execution of their Rules: In all or moſt of which the whole Space for the Performance is confin'd between the Lines of the Plan and Horizon; which, where the Scale is ſmall, and the Height of the Eye not very much advanc'd, renders the Work exceedingly confus'd; and where thoſe Lines are coincident, (which frequently happens) the Method becomes utterly impracticable.

THIS Author's great Experience in the Practice of *Perſpective*, having furniſh'd him with excellent RULES for Shortning the Work, and Obviating the foremention'd Difficulties; he has here very generouſly imparted them, and eſpecially the latter, in the Tenth and Eleventh Figures. And tho on Peruſal of the firſt three or four Plates, this Method may poſſibly ſeem the ſame that ſome others have before made uſe of; yet whoever ſhall diligently obſerve and copy the Rules and Examples of the ſucceeding Figures, muſt neceſſarily acknowledge the great Advantage this has in a Perſpective-Plan and Upright, clear and diſtinct; whence the finiſh'd Piece is deduc'd, without the leaſt Incumbrance of the Work. The Explanations of the Rules here given, are ſhort and inſtructive; and the Architectonical Deſigns produc'd to exemplify them, Noble and Magnificent.

THE Manner of Deſigning, where the Perſpective is drawn on ſeveral Ranges of Frames one behind the other, and ſuch Scenes of Theaters whoſe Grooves lie oblique

to the middle Line, is alſo here laid down: And by our Author's Method, *Horizontal Perſpective*, or that of Ceilings, is render'd leſs difficult than the *Vertical*, or that againſt an upright Wall. Upon the whole, nothing ſeems wanting that may make a Work of this nature complete; unleſs what concerns Deſigns which are either Circular, or abound with many Columns: For the Performance whereof, the Author, as he promiſes in the Sixty-fifth Figure, has, in a SECOND Volume, given a Rule more proper for the purpoſe; which alſo may poſſibly be made *Engliſh* in due time, if this Part meet with Encouragement.

WHAT the Author once intended ſhould make a Part of that Second Volume, he afterwards inſerted in the Ninety-third and following Figures of this Book: In the laſt of which, particular Notice ſhould be taken of his Concluſion; *That if* Painters *would not run into inextricable Errors, they ought as ſtrictly to obſerve the Rules of* Perſpective, *in deſigning the Figures of Men and Animals, as they do in painting Columns, Cornices, or other Parts of Architecture.*

THAT none therefore be diſcourag'd in their firſt Attempts, thro' the Brevity or Silence of our Author, (who, writing in a Country where the Principles of this Art are more generally known than with Us, had no need to inſiſt ſo long on ſome things, as might be thought neceſſary to *Beginners*) we ſhall endeavour to ſpeak as plainly as we can to a Point or two, moſt liable to be miſunderſtood, or to prove a Stumbling-Block at the Entrance; and then add a Word of Advice to ſuch as ſhall attempt the putting theſe Rules in Execution.

THE Author, in both his Explanations of the firſt Plate, has given ſome Account of what he would have his Reader underſtand, by *Deſigning in Perſpective*: and a right Conception of this Point being of great Uſe to facilitate the Work, we thought it not improper, to deſcribe ſomething more particularly, what is meant by the Art *Perſpective*; but ſhall at preſent ſpeak only of That, which, whether Vertical or Horizontal, is receiv'd on a Flat and Even Superficies: This being of much the more general Uſe; and, when rightly underſtood, renders the Difficulties of the Circular or Irregular Surfaces, eaſy and familiar.

PERSPECTIVE is the Art of Delineating, on a flat Superficies, as a Wall, Ceiling, Canvas, Paper, or the like, the Appearances of Objects, as ſeen from One determinate Point: For tho in Works of great Length, Two, Three, or more Points of Sight are ſometimes made uſe of; yet ſuch may more properly be ſaid to be Several Views conjoin'd, than One Piece of Perſpective: Of which ſee the Author's Opinion, at the End of this Treatiſe.

IN Perſpective, the Eye of the Beholder is eſteem'd a Point, from whence Rays are ſuppos'd to proceed to every Angle of the Object. The Wall or Canvas to be painted (which we ſhall here call the *Section*) is imagin'd to intervene at right Angles to the Axis of the ſaid Rays; and by diſſecting them, to receive the Appearance of the Object, in greater or leſs Proportion, as the Section is more or leſs remote from the Point of Sight. Our Author's Rule is, That the Diſtance of the Eye ought to be equal to the greateſt

Extent

Extent of the Object, whether in Length or Height: As, to view a Building that is a hundred Foot long, and fifty high; he would have the Diſtance a hundred Foot: To view a Tower ſixty Foot wide, and a hundred and fifty Foot high; the Diſtance ſhould be a hundred and fifty Foot. This Diſtance is not ſtrictly to be underſtood of the Space between the Eye and the Object, but of the Space between that and the Section, the Plan of which our Author calls the Line of the Plan, or Ground-line; for it's often requiſite, that the Section be plac'd at ſome Diſtance before the Object, on account of Projectures of Cornices, and other Parts of the Work that advance, as in the Eighth Figure.

THE Place of the Eye, with reſpect to its Height above the Ground, ought to be ſuch, as is moſt natural and agreeable to the Object. Thus in *Architecture*, the Baſements and inferior Parts of a Building are improper to be ſet above the Eye, and their Cornices and Entablatures have but an ill Effect when below it. *General* Perſpectives indeed require the Sight to be taken at a Bird's View; and on other Occaſions the Place of the Eye may be vary'd: but the beſt and moſt general Rule is, not to exceed five or ſix Foot Height above the Ground. The Height of the Eye above the Ground, thro' which a Line is drawn, call'd the *horizontal* Line, is ſet on by the ſame Scale of Proportion, as the Deſign bears to the real Work; and the Point of Sight ſo plac'd therein, as may render the Object moſt agreeable. From the Point of Sight, either on one or both ſides in the horizontal Line, you are to ſet, by the ſame Scale, the Diſtance you ſtand from the Section. And by means of theſe Points of Sight and Diſtance, and the Meaſures of the Parts brought on the Lines of the Plan and Elevation of the Section, by the ſame Scale; all the Examples of this Volume are reduc'd into Perſpective; as is manifeſt on Inſpection of the Figures.

WHAT we would add, by way of Advice, is,

I. THAT you very carefully obſerve, what the Author underſtands by *Breadth*, *Length*, and *Height*, in his Explanation of the Fifth Plate, before you proceed to practiſe on any Figure; otherwiſe you'll certainly miſunderſtand him, eſpecially in the Third Figure.

II. THAT the Rules of the Tenth and Eleventh Figures be particularly regarded, for avoiding Confuſion in the Plans and Uprights.

III. THAT from the Diſpoſition of the Perſpective-Plans and Uprights, with reſpect to the finiſh'd Pieces in the Twelfth and many following Figures, you would obſerve, with what Diſpatch the ſaid Pieces may, without the help of Compaſſes, be delineated by your Drawing-Square; *viz.* the Perpendiculars from the Perſpective-Plan, and the level Lines from the Perſpective-Upright, or Section.

IV. THAT you would accuſtom yourſelf in Works that have many Lines, to make the Perſpective-Plans and Uprights for each Part diſtinct, ſo as to prevent all Danger of Confuſion. Thus you may have one Plan and Upright for the Baſement of a Building; and when that is drawn on your finiſh'd Piece, remove them, and place thoſe of the Body of the Houſe; and when that's complete, do ſo by the *Attick*, &c. always

obſerving ſo to place the Plan below, and the Upright on one ſide of your neat Draught, that your Drawing-Square may command each of them; which will mightily ſhorten your Work.

V. THAT the Author's Advice of taking the Figures in courſe, be ſtrictly follow'd in the Practice; which will be a great means to render the Whole eaſy and pleaſant.

THIS is the Sum of what we thought moſt proper to advertiſe you; and have only this farther to requeſt, That if any Miſtakes may have eſcap'd the Preſs undiſcover'd, as we well hope there are few or none, you will favourably correct and pardon them.

MONITA ad TYRONES.

ONCINNITATEM ac ſymmetriam opticæ delineationes ædificiorum habere nequeunt, niſi utramque mutuentur ab Architectura. Proinde neceſſe eſt, ut in iſtius graphide ac intelligentia te aliquandiu exerceas, donec uniuſcujuſque elevationis veſtigium formare didiceris, ex eoque eruere ſectionem totius longitudinis, ut in Opere toto videre eſt, præſertim figuris ſexageſima octava & ſeptuageſima. Siquidem ex veſtigio & ex ſectione derivatur in opticas imagines congrua rerum ſingularum profunditas.

Subjiciam his conſilium ſummi momenti; videlicet, egregiè intelligas oportet figuram ſecundam, priuſquam progrediaris ad tertiam, idemque de cæteris dictum velim; nam ſingulas eo diſpoſuimus ordine, ut quæ præcedit, neceſſaria ſit ad percipiendas eas quæ ſequuntur. Si aliqua ſint in explicatione, quæ initio non intelligas, ipſum ſchema ſæpius diligenter inſpicies; ac viciſſim ſi aliqua deſint in ſchematibus, ex declarationibus ea ſupplebis. Lapſus verò quos deprehenderis, facilè pro tua benignitate, mihi, ut ſpero, condonabis.

ADVICE to BEGINNERS.

HE Perſpective of Structures here treated of, can have no Grace or Proportion, without the Help of Architecture. 'Tis therefore abſolutely neceſſary, that you employ yourſelf for ſome time in Drawing, and the Study of that Art; till you can readily deſcribe the Plan of any Upright, and from thence project the Section or Profile, as is ſhewn thro' the whole Courſe of this Work; and more particularly, in the Sixty-eighth and Seventieth Figures: Foraſmuch as the proper Depth of each Part of the Perſpective, is determin'd by the Plan and Profile thereof.

I ſhall add this one thing more, which is indeed of the laſt Importance; to wit, that you endeavour to underſtand the Second Figure thorowly, before you proceed to the Third; and ſo of the reſt: they being diſpos'd in ſuch Order, that the Knowledge of the preceding Figure is always neceſſary to a right Underſtanding of that which follows. If you meet with any thing which at firſt ſeems difficult in the Deſcription, a diligent Inſpection of the Figure may relieve you: And on the other hand, if you find not in the Figure every thing you deſire, you may have recourſe to the Explanation. What Errors you diſcover in the Work, I hope you'll generouſly overlook and pardon.

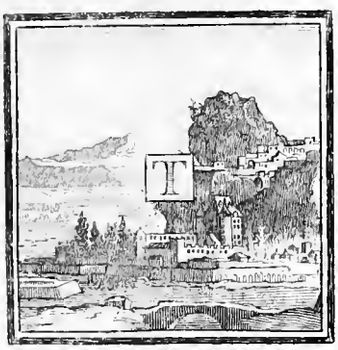
AD

Lectorem Perſpectivæ ſtudioſum.

ARS Perſpectiva, oculum, licet ſagaciſſimum inter ſenſus noſtros exteriores, mirabili cum voluptate decipit; eademque neceſſaria eſt iis, quibus in pingendo, tum ſingulis figuris poſitionem ac deformationem ſuam congruè tribuere, tum colores & umbras, magis vel minùs intendere aut remittere, prout oportet, curæ eſt. Ad id autem ſenſim ſine ſenſu illi perveniunt, qui ſolo ſtudio Graphidis non contenti, ſingulis Architecturæ Ordinibus exactè deformandis aſſueverint. Nihilominùs, inter multos qui opus hujuſmodi magno impetu aggreſſi hucuſque fuerunt, paucos numeramus, qui animum ipſo ſtatim initio non deſponderint, ob magiſtrorum librorumque penuriam, ordinatè ac perſpicuè docentium opticas projectiones, à principiis hujus artis, uſque ad omnimodam perfectionis conſummationem. Quum autem ſentiam, longâ multorum annorum exercitatione, me non minimam facilitatem in hac diſciplina mihi paraſſe: cenſeo ſtudioſorum voluntate me ſatisfacturum, eorumque profectui conſulturum, ſi methodos expeditiſſimas in lucem proferam, ad ſingulorum Architecturæ Ordinum opticas delineationes perficiendas, adhibitâ communi regulâ, ex qua omnia linearum occultarum offendicula ſuſtulimus. Deinde, ſi tempus & vires ad aliud Opus conſcribendum Bonitas Divina dederit, projectiones quaſcunque abſolvemus regulâ quâ in præſentia uti ſoleo, ac multâ facilior & univerſalior eſt regula communi & vulgata, quamvis hæc ſit fundamentum alterius. Itaque, Lector ſtudioſe, conſtanti animo negotium tuum ſuſcipe; ac lineas omnes tuarum operationum, ad verum oculi punctum ducere, ad gloriam ſcilicet DEI O.M. tecum omnino decerne. Sic votis honeſtiſſimis, ut auguror tibi ac ſpondeo, feliciter potieris.

TO

The Lovers of Perſpective.



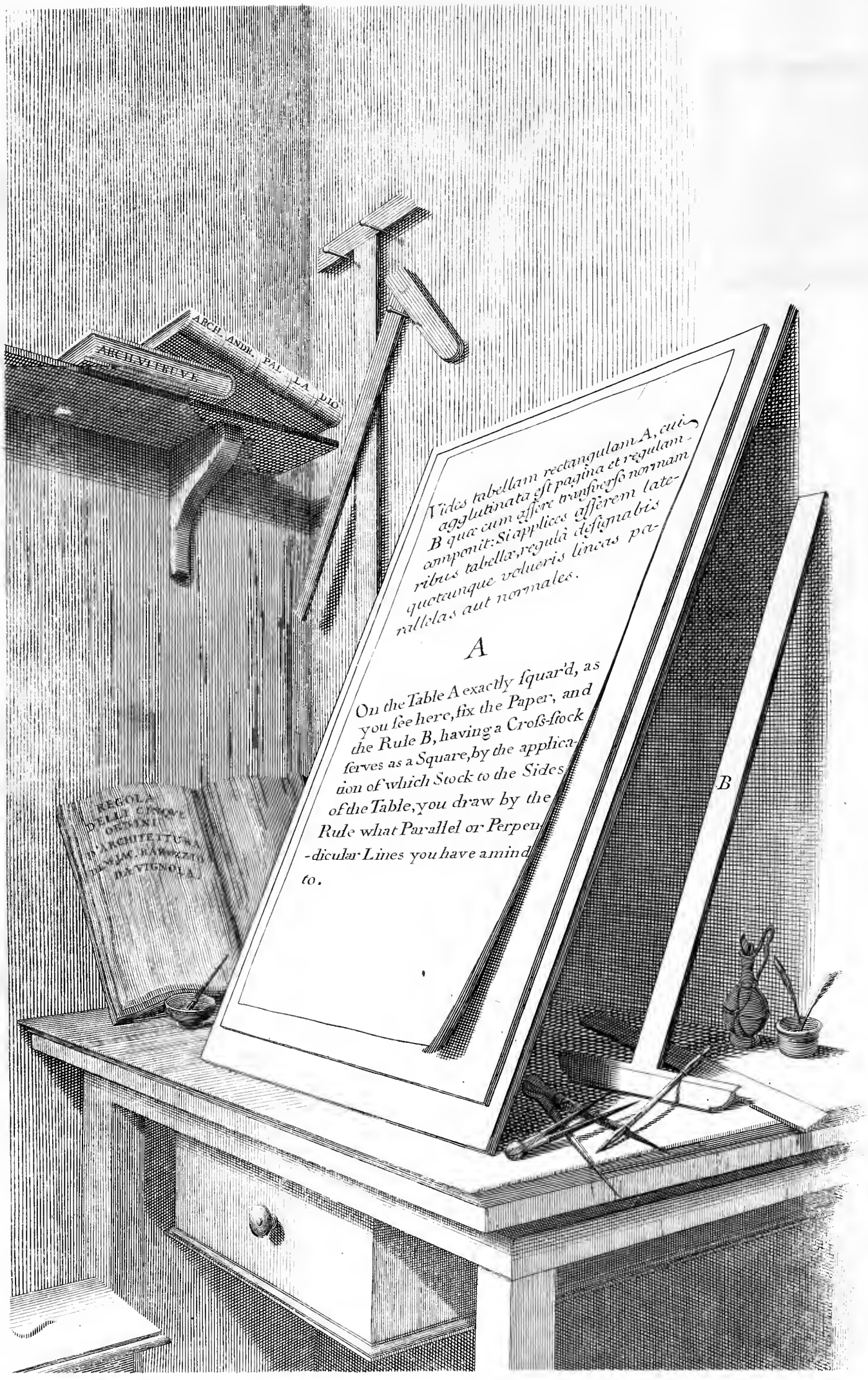
THE Art of PERSPECTIVE does, with wonderful Pleaſure, deceive the Eye, the moſt ſubtle of all our outward Senſes; and is very neceſſary to be known of all, who in Painting would give a due Place and Proportion to their Figures, and more or leſs Strength requiſite to the Lights and Shades of the Picture. This might be inſenſibly attain'd, if Perſons, not content with the Study of Drawing only, would accuſtom themſelves exactly to delineate the ſeveral Orders of Architecture. Nevertheleſs, among many who have hitherto vigorouſly undertaken this Work, there have been but very few, who have not been in a manner quite diſcourag'd, thro' want of Maſters and Books to teach them clearly and methodically the Rules of Perſpective-Projections, from the firſt Principles of the Art, to the entire Perfection thereof. Wherefore, apprehending that by long and conſtant Practice in Works of this kind, I had acquir'd a Method to facilitate the ſame; I judg'd it might be for the Satisfaction and Advantage of the Studious, to publiſh the ſhorteſt way for deſigning in Perſpective the ſeveral Orders of Architecture, by a common and eaſy Rule, free from the Incumbrances of occult Lines. But if it pleaſe God to give me Life and Health to compoſe another Book, I ſhall then ſhew the Method of putting Works into Perſpective by the Rule I make uſe of at preſent, which is more eaſy and general than the common way, tho this be the Foundation of the other. Therefore, Reader, my Advice is, that you chearfully begin your Work, with a Reſolution to draw all the Points thereof to that true Point, the Glory of GOD; and I durſt predict, and promiſe you good Succeſs in ſo honourable an Undertaking.

THE

Approbation of this Edition.

T the Requeſt of the Engraver, We have perus'd this Volume of PERSPECTIVE; and judge it a WORK that deſerves Encouragement, and very proper for Inſtruction in that ART.

Chr. Wren,
J. Vanbrugh,
N. Hawkſmoor.


ARCH. ANDR. PAL. LA DIO
ARCHITETTURE
REGOLA DELLI CINQUE ORDINI D'ARCHITETTURA DI M. IAC. BAROZZIO DA VIGNOLA
Vides tabellam rectangulam A, cui agglutinata est pagina et regulam B quæ cum assere transverso normam componit: Si applices asserem lateribus tabellæ, regulâ designabis quotcunque volueris lineas parallelas aut normales.
A
On the Table A exactly squar'd, as you see here, fix the Paper, and the Rule B, having a Cross-stock serves as a Square, by the application of which Stock to the Sides of the Table, you draw by the Rule what Parallel or Perpendicular Lines you have a mind to.
B

POZZO's

ARCHITECTURE

IN

PERSPECTIVE.

FIGURA PRIMA.

Explicatio linearum Plani & Horizontis, ac Punctorum Oculi & Diſtantiæ.

Ut principia Perſpectivæ faciliùs intelligas, pono tibi ob oculos Templum, in cujus interiori facie, præter cætera, pingendum ſit aliquid ad Perſpectivam pertinens. Templi hujus veſtigium geometricum eſt A, *elevatio geometrica in longum eſt* B, *in latum eſt* C. *In* A *eſt locus Hominis aſpicientis lineam* DE, *cui paries pingendus incumbit. In* B *idem Homo ex eâdem diſtantiâ intuetur lineam* FG, *quæ refert elevationem parietis. In figura* C *ſupponimus Hominem conſiſtere è regione ipſius parietis: eaſdemque proportiones menſurarum tranſlatas eſſe ex vero pariete in figuram* C, *quæ ipſum in parvo repræſentat.*

Prima ergo linea HI *dicitur linea terræ vel plani, ex quâ incipit, eidemque incumbit Ædificium. Secunda linea* NON *priori parallela, dicitur horizontalis, in quâ ponitur* O *punctum oculi, &* N *punctum diſtantiæ. Duo autem puncta diſtantiæ à nobis poſita ſunt, ut unum adhibeas ex quâ parte volueris; nam ad figuras opticè contrahendas ſufficit unum punctum diſtantiæ: nec fieri poteſt ulla optica delineatio, quin primo loco deſignentur duæ parallelæ, una plani ſeu terræ, altera horizontis, notando in lineâ horizontis punctum oculi, ſeu opticum, & punctum diſtantiæ. Porrò unam eandemque rem triplici Schemate repræſentare oportuit, ut videas, locum ex quo aſpicienda eſt figura* C *eſſe punctum* N *unius ex rectis* NO, *quam concipere debemus veluti normaliter infixam in* O; *ac diſtantiam inter* O *&* N *eandem eſſe debere cum diſtantiâ inter* A *&* DE, *inter* B *&* GF.

In picturis multum ſpatii occupantibus, punctum oculi poni ſolet in medio lineæ horizontalis: atque ubi altitudo picturæ ſit major latitudine, diſtantia NO *fiet æqualis altitudini. Si latitudo picturæ ſit major altitudine, diſtantia* NO *fiet æqualis latitudini; ita enim unico intuitu totum picturæ ſpatium comprehendi poterit. Porrò quamvis eadem diſtantia diverſo modo adhibeatur in veſtigio* A, *& in elevationibus* B *&* C; *nihilominus ſectiones viſualium cum pariete veſtigii* A, *& elevationis* B, *omninò conſpirant cum ſectionibus viſualium figuræ* C.

Jam ſi velimus ut ſpectatori in A *&* B *paries depictus videatur diſtare à lineis* DE *&* GF, *quanta eſt longitudo quadrati* P, *cujus elevatio eſt* Q; *ex punctis* A *&* B *fiant viſuales ad puncta extrema quadrati, notando ſectiones viſualium cum pariete* DE *&* GF, *qui ab aliis vocatur velum, vitrum diaphanum, ſectio, tela, vel tabula. Invenies autem, lineas* RS *ac* TV *eſſe æquales, ac ſimiliter lineas* XZ *&* YK; *& ſic de aliis.*

The Firſt Figure.

Explication of the Lines of the Plan and Horizon, and of the Points of the Eye and of the Diſtance.

43

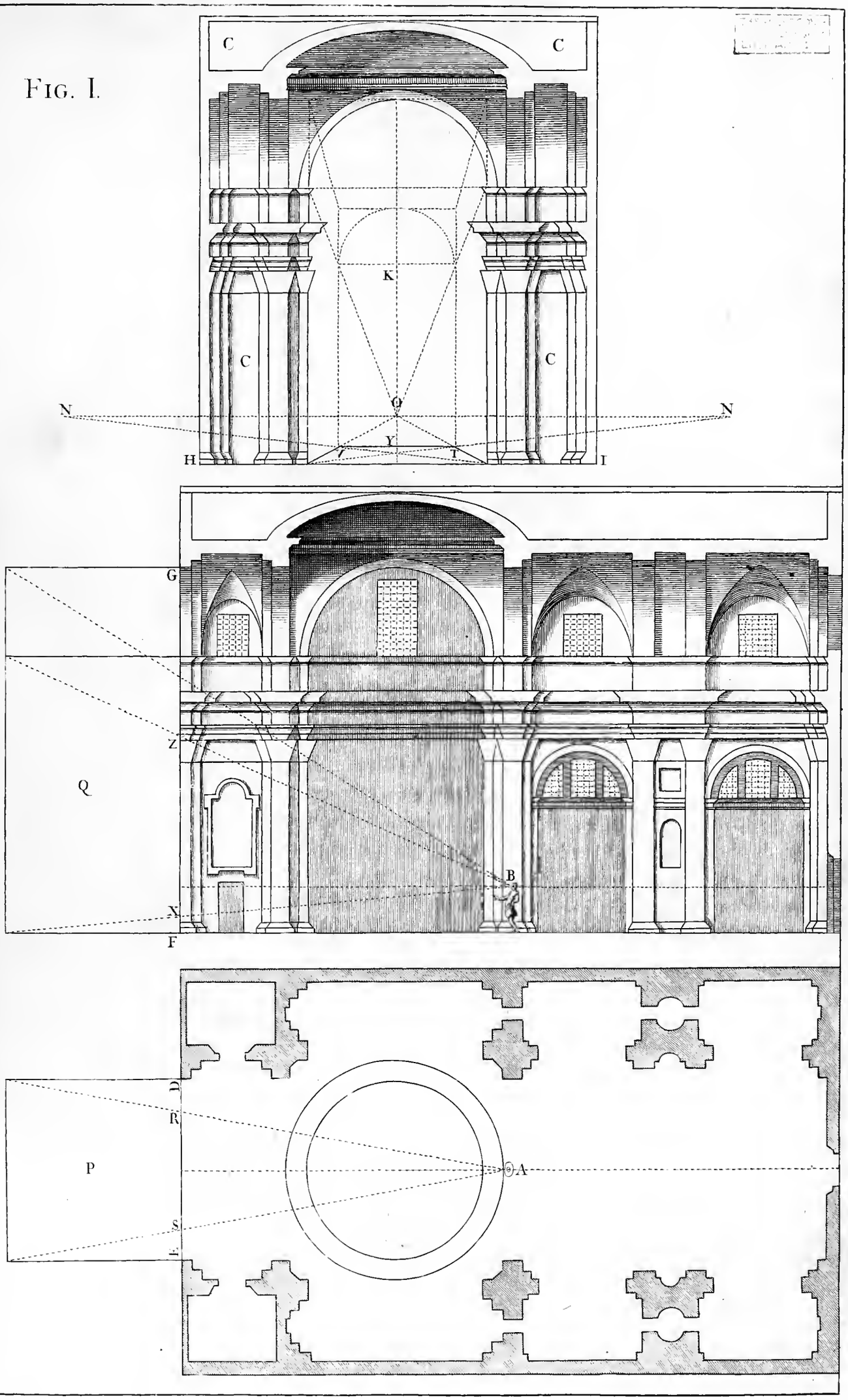
THAT you may the better underſtand the Principles of Perſpective, here is preſented to your View a Temple, on the inner Wall of which, amongſt other Things, one would paint ſomething in Perſpective. The Geometrical Plan of this Church is A, the Geometrical Elevation, or Upright, lengthwiſe is B, breadthwiſe is C. In A is the Place from whence a Man beholds the Line DE, which is the Plan of the Wall that is to be painted: in B the ſame Man, from the ſame Diſtance, looks upon the Line FG, that repreſents the Elevation of the Wall. In Fig. C, the Man is ſuppos'd to ſtand oppoſite to the ſaid Wall; and this Figure contains in little, the very ſame Proportions of Meaſures transferr'd from the real Wall.

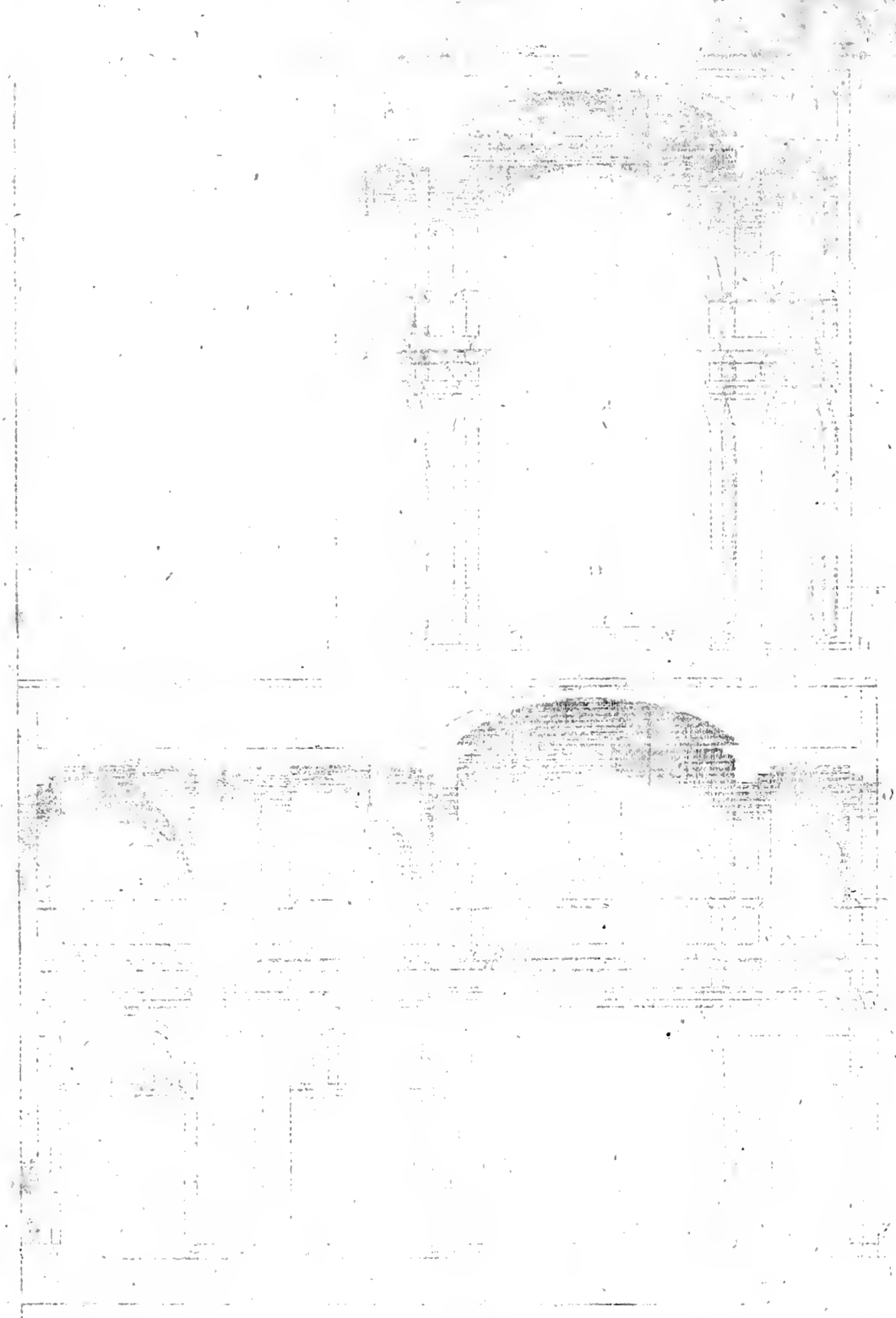
The firſt Line therefore HI is call'd the Ground-line, or Line of the Plan, at which the Edifice begins, and on which it ſtands. The ſecond Line NON, parallel to the former, is call'd the Horizontal Line, wherein is plac'd O the Point of the Eye, and N the Point of the Diſtance. Two Points of Diſtance are here laid down, that you may make uſe of which you pleaſe: for that on one Side only is ſufficient for the fore-ſhort'ning Figures in Perſpective: Neither can any Optick Delineation, or Perſpective, be deſcrib'd, without firſt making two Parallels; one of the Plan or Ground-line, the other of the Horizon; marking, in the Line of the Horizon, the Point of the Eye, or Sight, and the Point of Diſtance. It was thought beſides expedient to put one and the ſame Thing into three Schemes or Deſigns, to let you ſee, that the Place, from which the Figure C is to be look'd upon, is the Point N, one of the right Lines NO, which muſt be conceived as fixt at right Angles into O; the Diſtance ON being the ſame as that between A and DE in the Plan, or between B and GF in the Upright.

In Pictures taking up a great deal of Room, the Point of Sight ought to be made in the middle of the Horizontal Line; and where the Height of the Picture happens to be greater than the Breadth, the Diſtance NO muſt be made equal to the Height. If the Breadth of the Picture exceed the Height, the Diſtance NO muſt be made equal to the Breadth: For ſo will the Extent of the Picture be the better comprehended, or receiv'd, at one View. And altho the ſame Diſtance may ſeem to be uſed in a different manner in the Plan A, and in the Elevation B, from what it is in C; nevertheleſs the Sections of the viſual Rays, with the Wall of the Plan A, and of the Elevation B, have a perfect Correſpondence with the Sections of thoſe of the Figure C.

Now, if to the Spectator in A and B, we would have the fartheſt part of the Work ſeem to recede from the Lines DE and GF, as much as the Square P does, whoſe Elevation is Q; draw from the Points A and B, the viſual Rays to the extreme Points of the Square P and Q; noting the Sections they make with the Walls DE and GF; which by ſome is call'd the Veil, Tranſparent Medium, Section, Cloth, or Table: and you'll find RS equal to TV, XZ equal to YK; and ſo of the reſt.

FIG. I.





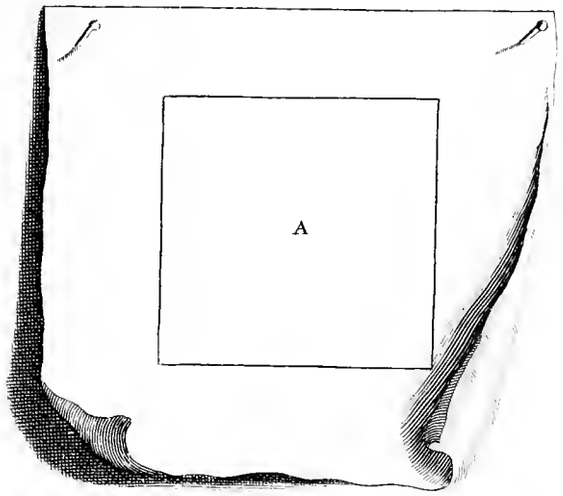


FIG. II.

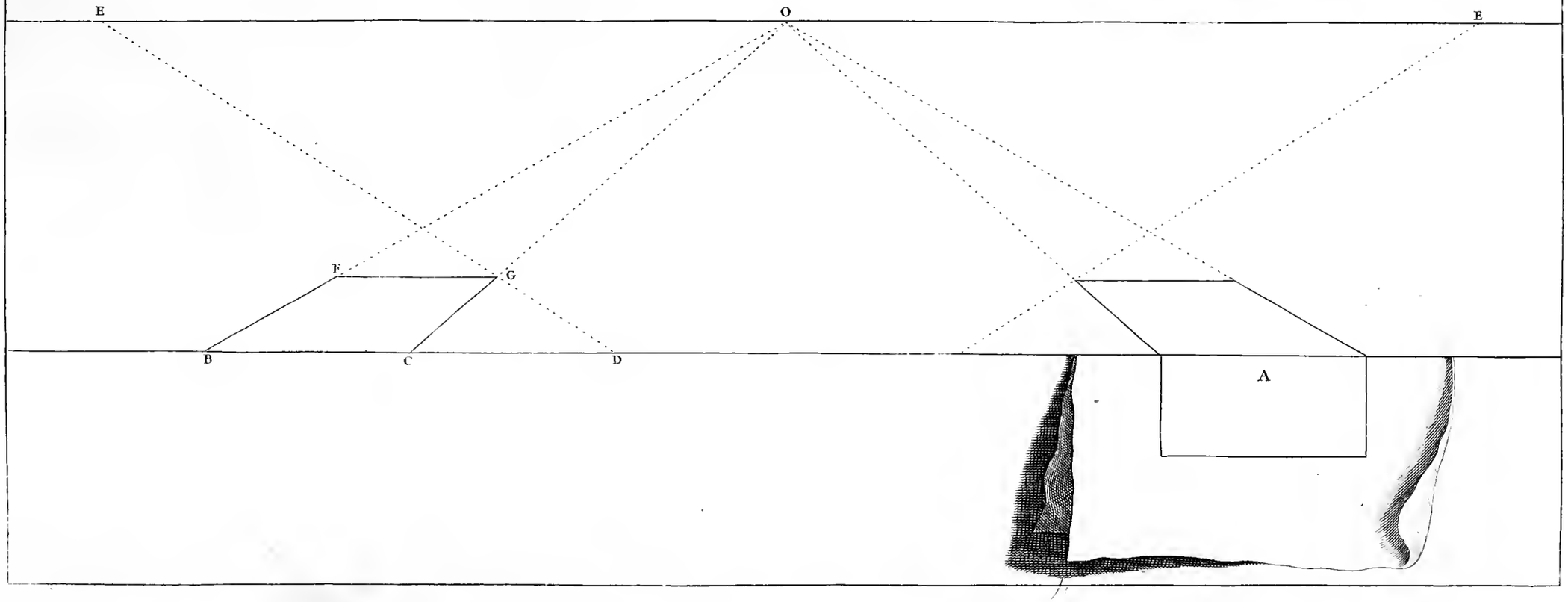


FIGURA Secunda.

Modus delineandi optice Quadratum.

ANTE deſcriptionem opticam quadrati A, *quod fingimus delineatum eſſe in papyro ſeparatâ, ducendæ ſunt duæ lineæ parallelæ; altera plani, altera horizontis, ut jam docuimus; notando in linea horizontis punctum oculi* O, *& punctum diſtantiæ* E. *Tum tranſlatâ in lineam plani latitudine ac longitudine ipſius quadrati* A, *ita ut linea* CB *ſit æqualis latitudini, &* DC *ſit æqualis longitudini. Ex punctis* B *&* C *fiunt viſuales* BO, CO *ad punctum oculi; ex puncto* D *ſit recta* DE *ad punctum diſtantiæ. Demum, ubi viſualem* CO *ſecat recta* DE, *fit* GF *parallela ad* CB; *habeſque quadratum optice contractum.*

Compendium temporis & laboris facies, præſertim in ſchematibus quæ abundant lineis, ſi chartulam in medio complicaveris, eademque utaris, ut latitudinem ac longitudinem quadrati transferas in lineam plani.

The Second FIGURE.

The Manner of delineating a Square *in Perſpective.*

BEFORE the *Square* A, which is ſuppos'd to be drawn on a ſeparate Paper, can be laid down in Perſpective, two parallel Lines muſt be drawn; one of the Plan, the other of the Horizon, as is already intimated; noting in the Horizontal Line the Point of Sight O, and the Point of Diſtance E. Then, when the Length and Breadth of the Square A ſhall be transferr'd into the Line of the Plan, ſo that the Line CB be equal to the Breadth, and DC be equal to the Length, let the viſual Lines BO, CO be drawn from the Points B and C to the Point of Sight O, and the right Line DE from the Point D to the Point of Diſtance. Laſtly, where the Line DE cuts the Viſual CO, make GF parallel to CB: and you have the *Square* Optically contracted, or fore-ſhorten'd in Perſpective.

To ſpare Time and Pains, eſpecially in Figures that abound in Lines, fold your Paper in the middle, and make uſe of it to transfer the Breadth and Length of the Square, into the Line of the Plan.

FIGURA Tertia.

Optica delineatio rectanguli, altera parte longioris.

Atitudo BC *rectanguli* A *ponatur in linea plani, adhibito circino, vel chartulâ complicatâ; & ex punctis* B *&* C *fiant visuales ad* O, *punctum perspectivæ. Tum papyro ex altera parte iterum complicatâ, notetur longitudo* CD *rectanguli; ducendo tum rectam* DE *ad punctum distantiæ, tum rectam* FG *parallelam ad* BC, *quæ complebit opticam delineationem rectanguli.*

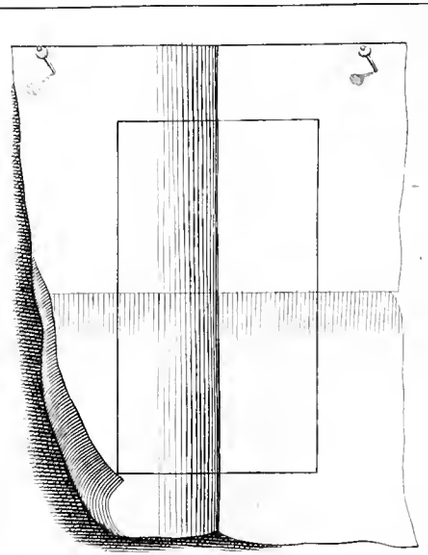
Altera figura ostendit complicationem cruciformem papyri, quæ adhiberi potest in delineandis rectangulis, seu latitudo eorum sit major longitudine, aut vice versâ; seu latitudo & longitudo sint æquales.

The Third FIGURE.

The Delineation of an Oblong Square *in Perspective.*

ET the Breadth BC of the Square A, be plac'd in the Line of the Plan, by the Compass, or a folded Paper, and from the Points B and C, make the Visuals to the Point of Sight O. Then fold your Paper cross-wise, and mark CD the Length of the Square, drawing the Line DE to the Point of Distance, and the Line FG parallel to BC, which will complete the Optick Delineation of the oblong Square.

The other Figure shews the Folding of the Paper cross-wise, which is of ready use in delineating Squares, whose Breadth exceeds their Length, or *vice versâ*; or whose Length and Breadth are equal.



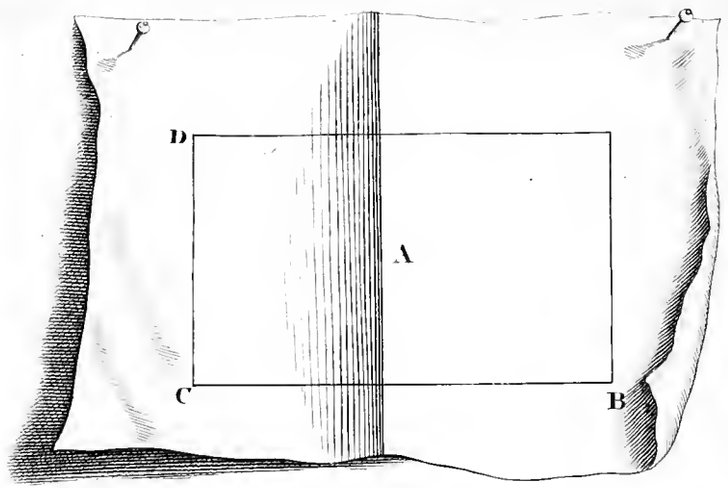
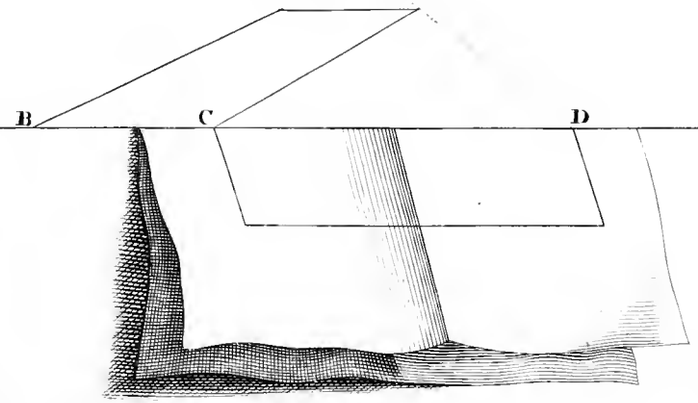
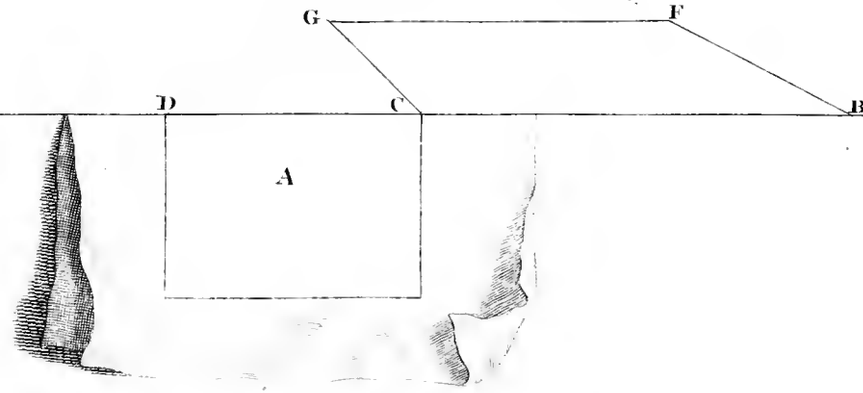


FIG: III

E O E





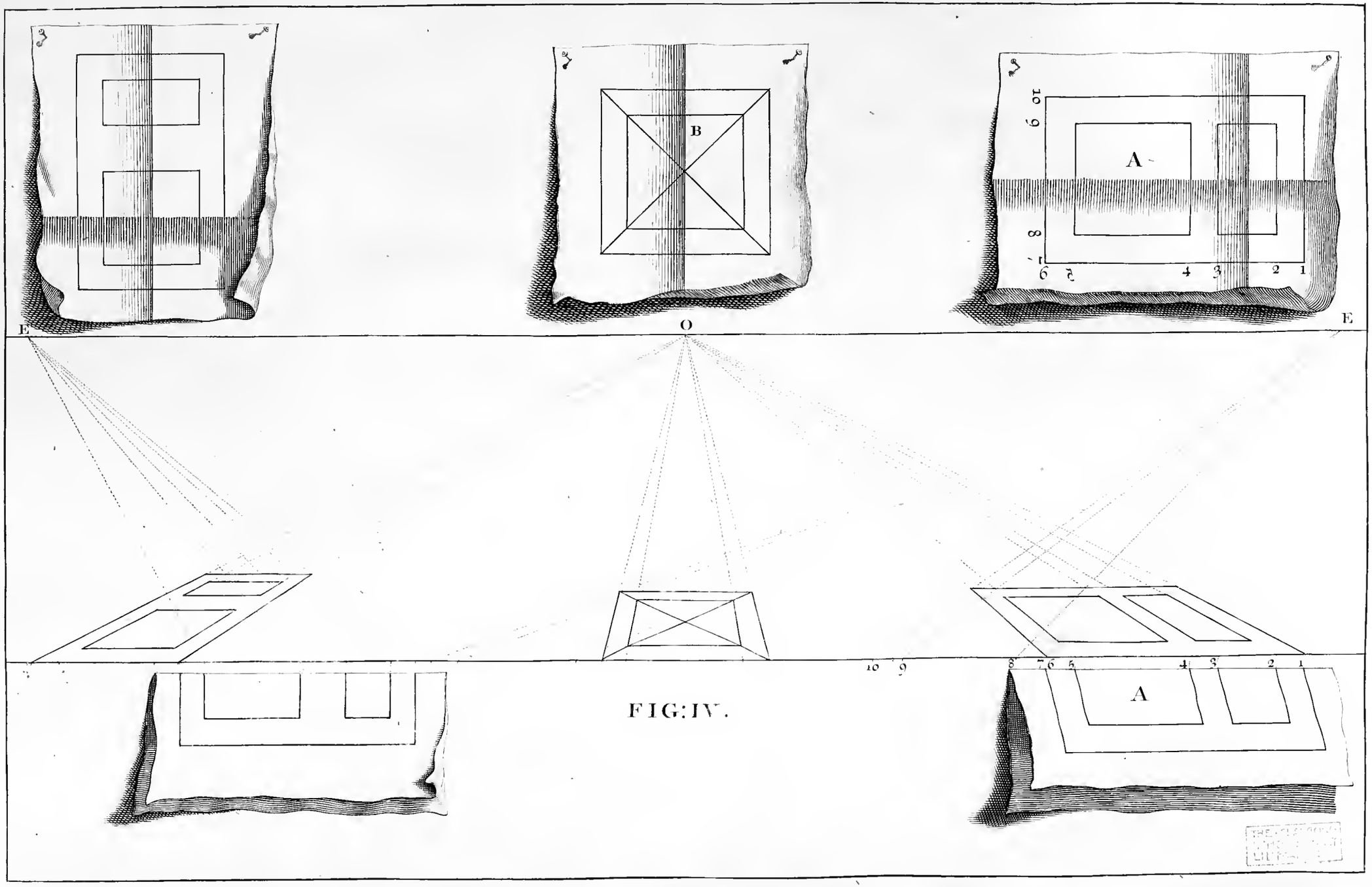


FIG: IV.

FIGURA Quarta.

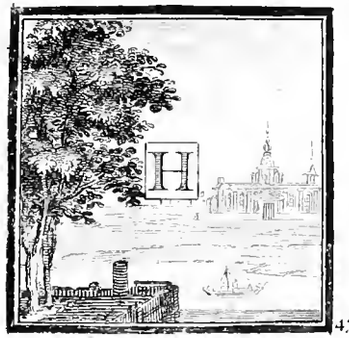
Optica deſcriptio Quadrati duplicis.

AM incipies frui compendio papyri complicatæ. Nam eam admovendo lineæ plani, nullo negotio notare poteris puncta 1, 2, 3, 4, 5, 6, *linearum viſualium, quæ ducentur ad* O *punctum perſpectivæ. Exinde complicatâ rurſum chartulâ in crucem ad* P, *notabuntur hæc puncta* 7, 8, 9, 10; 7, *coincidens cum puncto* 6, *niſi quadratum diſtet à linea plani. Ductis autem rectis ex* 8, 9, 10, *ad punctum* E, *ubi ſecant viſualem* 6, 7, *fient parallelæ, eritque completa delineatio.*

In medio quadrati B, *aliud quadratum facilè deſcribetur, ducendo diagonales ſeu diametros ab angulo ad angulum, ut in figura.*

The Fourth FIGURE.

The Optical Delineation of a double Square.



HERE you'll find the Advantage of your folded Paper; for, applying it to the Line of the Plan, you readily mark the Points 1, 2, 3, 4, 5, 6, of the viſual Lines, which muſt be drawn to the point of Sight O. Then folding the Paper croſs-wiſe, as in P, you mark the Points 7, 8, 9, 10, placing the Point 7 on that of 6, unleſs you would have the Square remov'd within the Line of the Plan. Then from 8, 9, 10, drawing Lines to the Point of Diſtance E; where they interſect the Line 6, 7, draw parallels to the Line of the Plan; and your Work is done.

Within the Square B, you may eaſily inſcribe another Square by help of the Diagonals; as may be ſeen in the Figure.

FIGURA Quinta.

Veſtigia quadratorum, cum elevationibus.

UTPOSITIS iis quæ jam diximus de Contractione optica Quadratorum, notandum eſt, veſtigium primi Quadrati diſtare à linea plani ſpatio BA *opticè contracto; quia linea* BD *habet à viſuali* AO, *diſtantiam* BA. *Eodem modo Quadratum ſecundum diſtat à linea plani ſpatio* EA, *& ſic deinceps.*

Velim obſerves, in omnibus his Quadratis lineas longitudinis eſſe partes viſualium, lineas vero latitudinis eſſe parallelas lineæ plani, & in primo quadrato duci ex punctis, in quibus lineæ BD, CD, *tendentes ad punctum diſtantiæ, ſecant viſualem* AO.

Sub ſingulis veſtigiis Quadratorum, delineavimus illa omnino ſimilia, per quæ parvo labore fient tres baſes, erigendo ad libitum duas primas perpendiculares æquales; ac ducendo tum duas viſuales ad punctum oculi O, *tum reliquas, ut in figura. Supponendum eſt autem, geometricam altitudinem cujuſlibet rei deſumi ex lineis normalibus ad lineam plani; quemadmodum latitudo & longitudo geometrica deſumuntur ex eadem linea plani.*

Tres aliæ baſes inferiores formantur ſine lineis occultis ex veſtigio & ex elevatione longitudinis opticè deformatis, adhibendo ſolas altitudines ac latitudines angulorum. Nomine altitudinis intelligimus diſtantiam cujuſlibet anguli à linea plani; nomine latitudinis intelligimus diſtantiam anguli ab una aliqua linea normali ad lineam plani; dummodo hæ normales eandem habeant poſitionem reſpectu baſium, & reſpectu veſtigiorum & elevationum. Quemadmodum autem per concurſum altitudinis FG, *& latitudinis* HI, *ope duorum circinorum invenitur unus angulus in una baſi; ita inveniuntur cæteri tum in ea, tum in reliquis.*

The Fifth FIGURE.

Plans of Squares, with their Elevations.

BESIDES what has been already ſaid of the fore-ſhortning of Squares in Perſpective, it is convenient to obſerve, That the Foot of the firſt Square is here ſet within the Line of the Plan, as much as the Space BA optically contracted; becauſe the Line BD has the Diſtance BA from the Viſual AO: And in like manner, the ſecond Square is diſtant from the Line of the Plan the Space EA; and ſo for the reſt.

I would have you obſerve in all theſe Squares, That by the *Length* I always underſtand part of the Viſual Lines, and by the *Breadth* thoſe parallel to the Ground-line; which in the firſt Square are drawn from the Points in which the Lines BD, CD, tending to the Point of Diſtance, interſect the Viſual AO.

Under the Plans of theſe Squares are deſcrib'd three others juſt like them, which are eaſily converted into three Baſes, by erecting, at pleaſure, the two firſt Perpendiculars of equal Height, and thence drawing two Viſuals to the Point of Sight O, which alſo bound the reſt, as in the Figure. Obſerve alſo, That the Geometrical Height of every thing is to be ſet perpendicularly from the Ground-line, or Line of the Plan, as the Geometrical Length and Breadth are alſo plac'd on the ſame Line.

The three other Baſes below are form'd without the help of Occult Lines, by making uſe only of the Heights and Breadths of the Angles, taken from the Perſpective Plan and Upright. By *Height* I underſtand the Diſtance of each Angle, or Corner, from the Ground-line: By *Breadth*, the Diſtance of an Angle, or Corner, from any Line perpendicular to the Ground-line; provided theſe Lines have always the ſame Place in reſpect of the Baſes, as they have in reſpect of the Perſpective Plan and Upright. And as, by the help of two Compaſſes, the Height FG, and the Breadth HI determine the Corner of the firſt Baſe; ſo, in like manner, are found the Corners of the other Baſes.

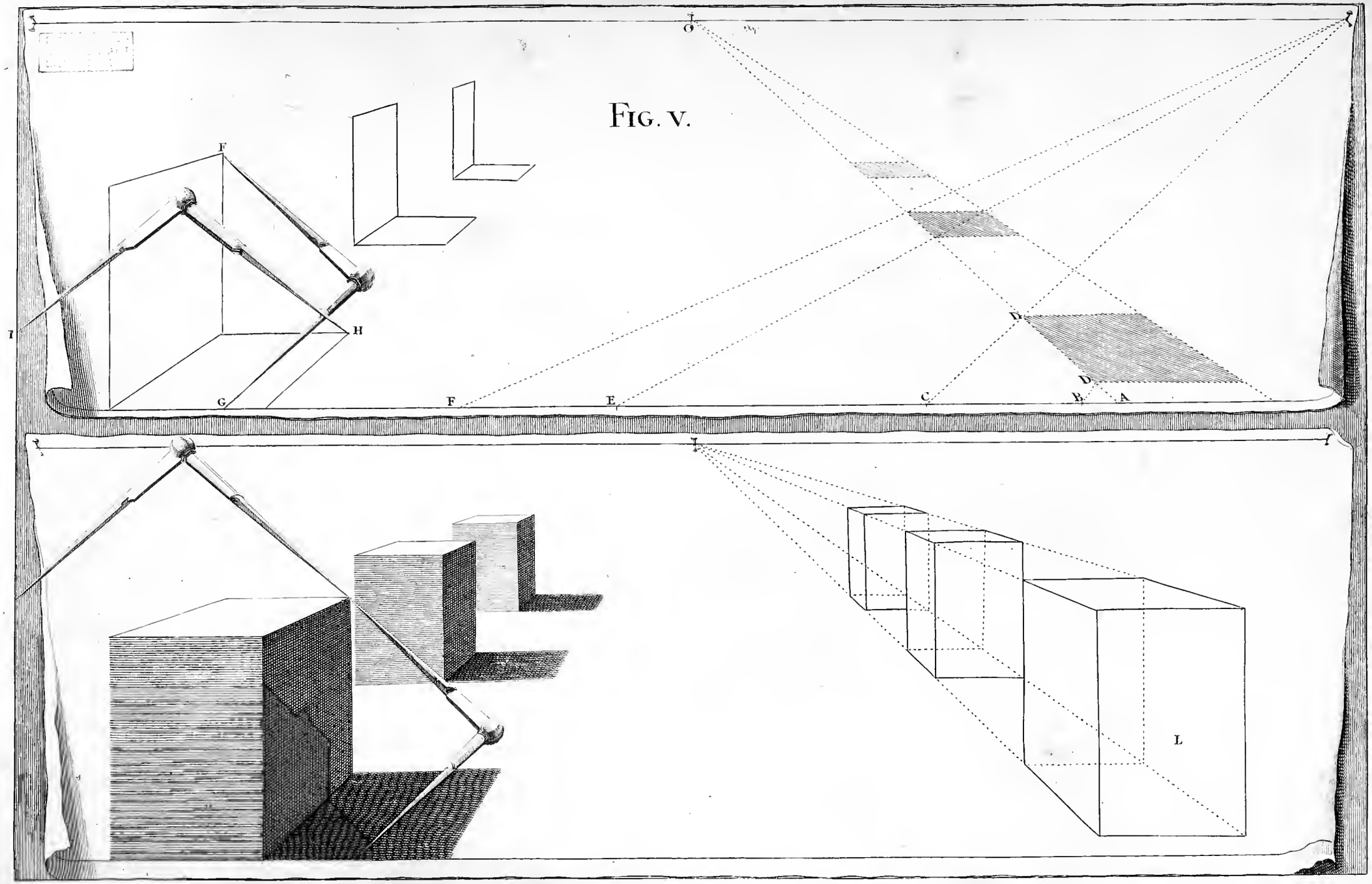


FIG. V.

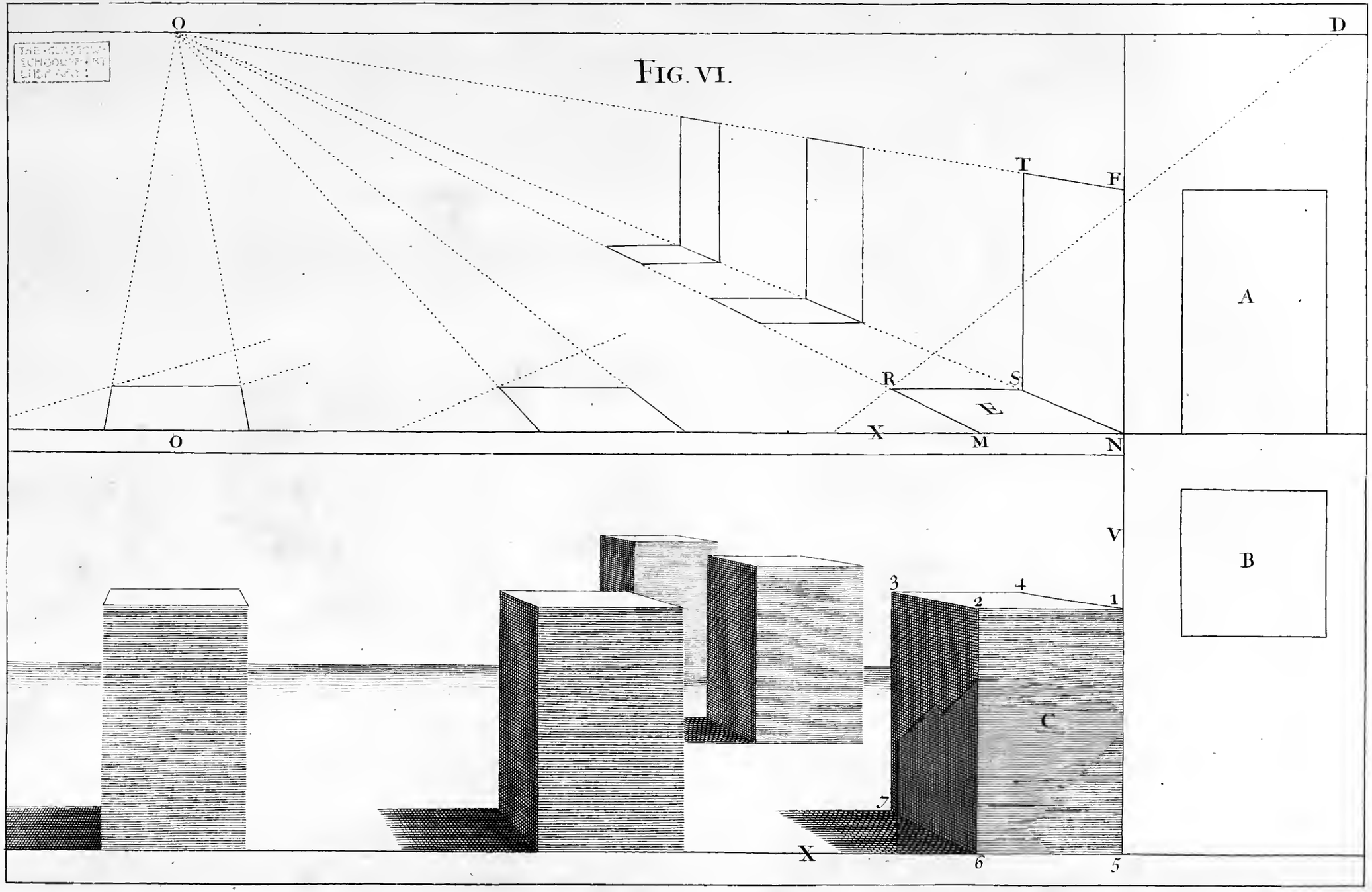


FIG. VI.

FIGURA Sexta.

Modus opticæ delineationis, abſque lineis occultis.

In hac Figura ſexta, veſtigium geometricum B *ſeorſim poſui ab elevatione geometrica* A, *ut deinceps faciemus. Veſtigium* B *optice contractum in* E *eſt* N M R S ; *elevatio contracta longitudinis veſtigii eſt* F T S N. *Poſito autem quod altitudines* F N, 1, 5, 2, 6, *ſint æquales ; latitudines* N M, 1, 2, 5, 6, *ſint æquales ; & rectæ* N M, 5, 6, *ſint in linea* X *plani ; rectæ* F N, 1, 5, *ſint in perpendiculo* V : *anguli* 3 & 4 *baſis* C *habent eandem elevationem ſeu diſtantiam à linea* X *plani, quam habet angulus* T : *anguli* 1 & 2 *habent elevationem, quam angulus* F ; *anguli* 3 & 7 *habent eandem latitudinem ſeu diſtantiam à perpendiculo* V, *quam habet angulus* R : *anguli* 2 & 6 *habent eandem latitudinem, quam habet angulus* M.

The Sixth FIGURE.

The manner of deſigning in Perſpective, without occult Lines.

IN this ſixth Figure I have deſign'd the Geometrical Plan B ſeparately from the Geometrical Elevation A, as I ſhall always do hereafter. The Plan B optically contracted, or put in Perſpective, in E, as N M R S ; the Elevation of its Length in Perſpective in F T S N. Then ſuppoſing the Heights F N, 1, 5, 2, 6, equal ; and the Breadths N M, 1, 2, 5, 6, equal ; the Lines N M, 5, 6, to be in the Line of the Plan X ; and the Lines F N, 1, 5, in the Perpendicular V : the Angles 3 and 4 of the Baſe C have the very ſame Elevation or Diſtance from the Line of the Plan X, as has the Angle T : the Angles 1 and 2 have the ſame Elevation with the Angle F : the Angles 3 and 7 have the ſame Breadth or Diſtance from the Perpendicular V, as the Angle R has : the Angles 2 and 6 have the ſame Breadth, as the Angle M has.

FIGURA Septima.

Aliud exemplum veſtigii geometrici, cum elevatione longitudinis.

I delineanda ſit baſis diſſecta in quatuor partes, fiat veſtigium A *cum ſuis diviſionibus longitudinis* E D *& latitudinis* C D. *Eaſdem vero diviſiones latitudinis habebit in* E F *elevatio* B *quæ pertingit uſque ad* X. *Porro ad contractionem opticam veſtigii adhibebitur papyrus complicata in latum & in longum, transferendo in lineam plani latitudinem & longitudinem veſtigii. Deinde nullo negotio fiet optica deformatio elevationis, ut clarè poſitum eſt in figura. Quomodo autem ex veſtigio & elevatione longitudinis opticè imminutis eruatur baſis nitida ſine lineis occultis, ex præcedentibus manifeſtum eſt. Optarem ut per aſſiduam circini tractationem in hac methodo exercenda operam ſedulò ponas; quum ex ea pendeat omnis facilitas delineationum opticarum.*

The ſeventh FIGURE.

Another Example of a Geometrical Plan and Upright, put in Perſpective.

OR drawing in Perſpective a Pedeſtal, or Baſe, divided into four Parts, make the Plan A, with its Diviſions of Length ED, and of Breadth C D; and the ſame Diviſions of Breadth E F, in the Elevation B, prolong'd to X. Then make the Perſpective-Plan, by transferring the Breadth and Length into the Ground-line, by means of your Paper folded croſs-wiſe: From which Plan the Perſpective Upright is very eaſily made, as may be plainly ſeen in the Figure. How the Baſe below, without occult Lines, is made from the Perſpective-Plan and Upright, is manifeſt from what has been ſaid before. I could wiſh you would be very diligent in the Practice of this Method by the Compaſs; becauſe the Diſpatch of Perſpective Delineations chiefly depends thereon.

FIG. VII.

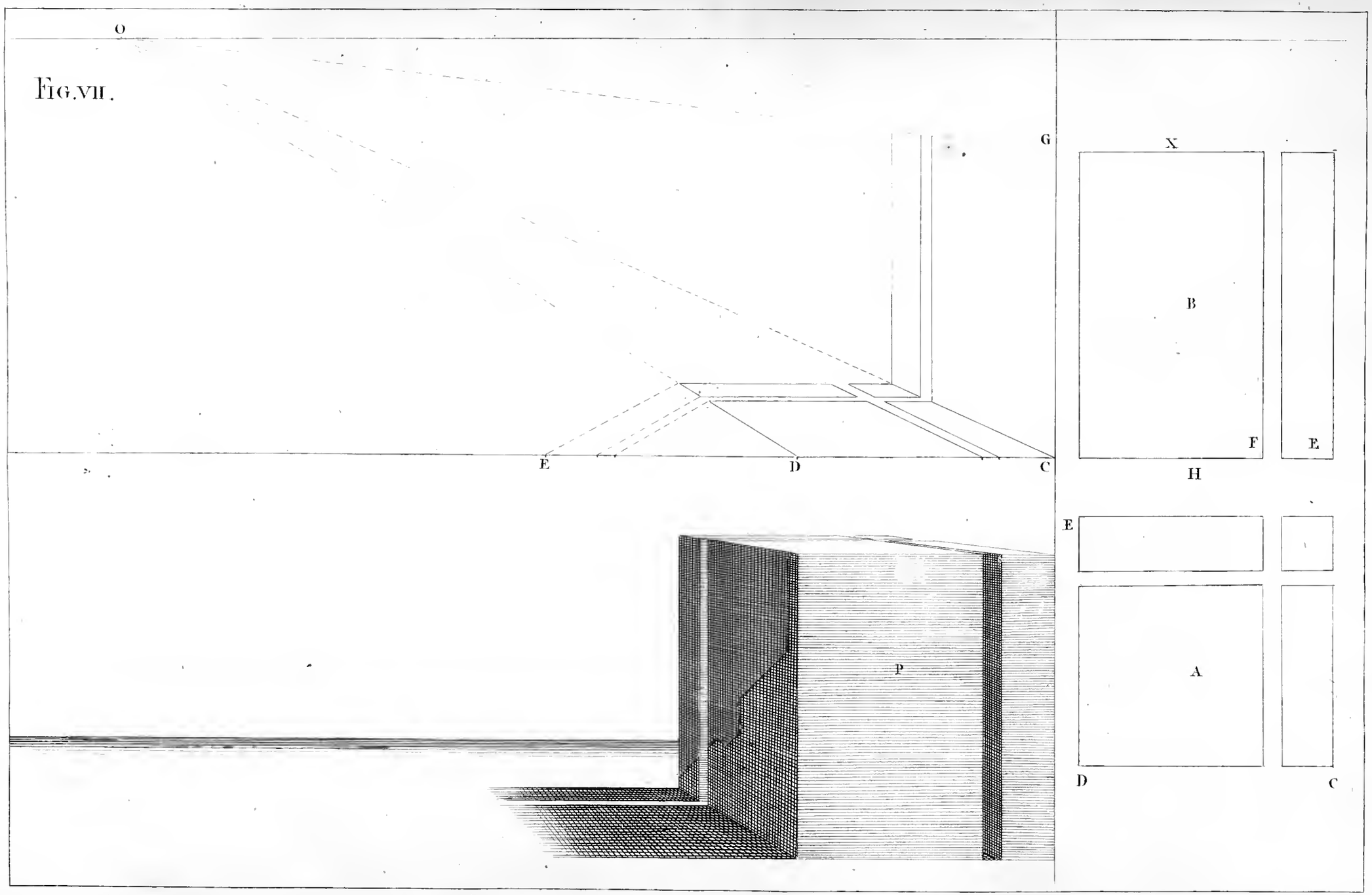


Fig. 8.

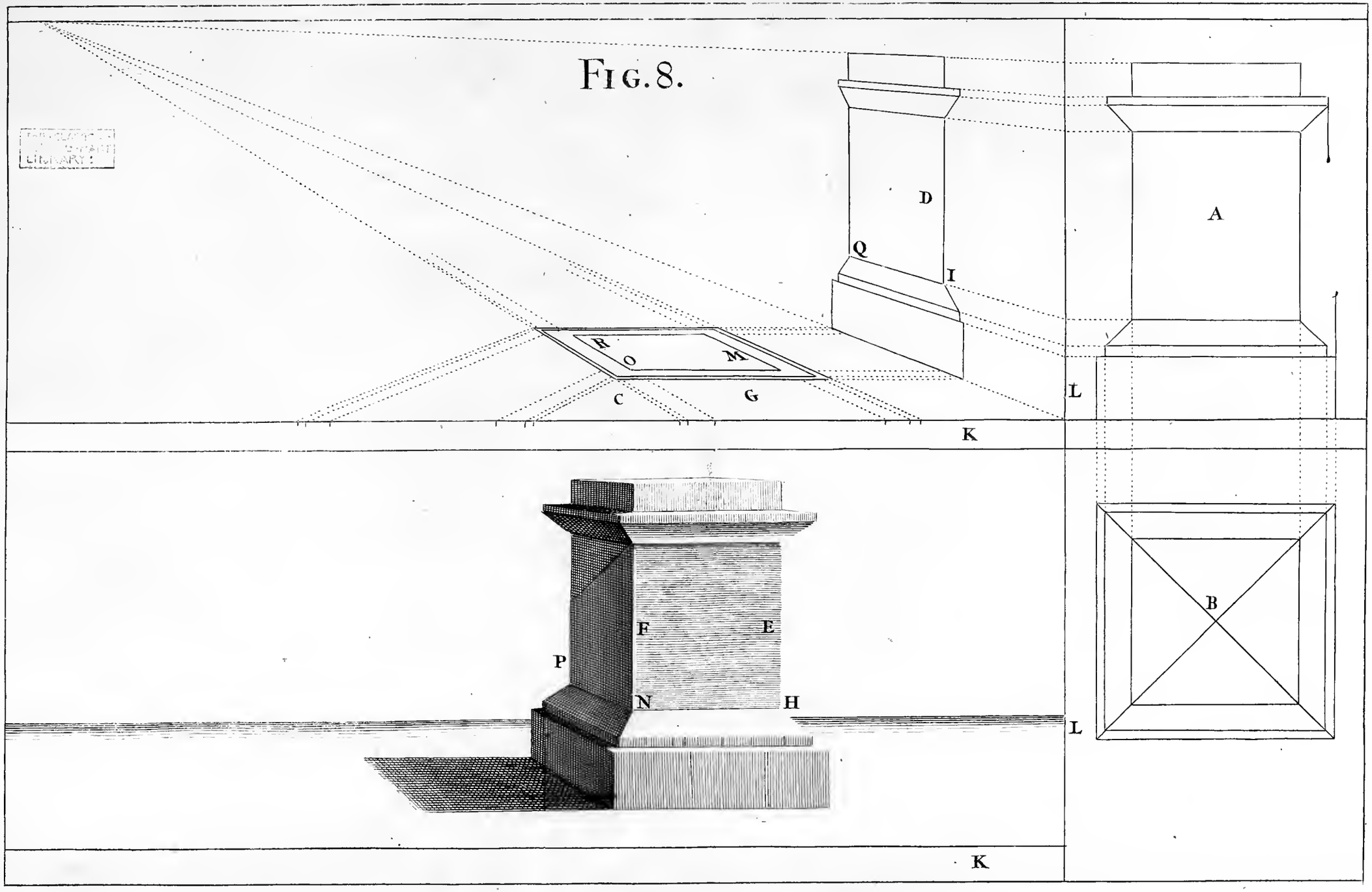


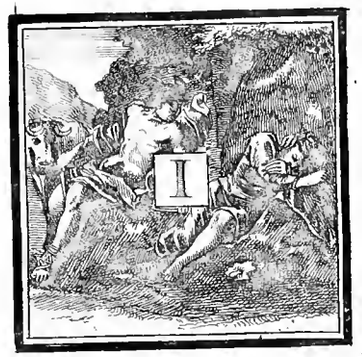
FIGURA Octava.

Optica projectio ſtylobatæ.

I libitum fuerit delineare ſtylobatam, cum projecturis in ſummo & imo, incipies ab elevatione geometrica A, *ducendo occultas ad id neceſſarias, tum verſus perpendicularem* L, *tum deorſum pro veſtigio geometrico* B, *cujus diſtantiæ transferentur in ſpatium* G. *Si menſuræ longitudinis diſtent ſpatio* C *à menſuris latitudinis, veſtigium deformatum videbitur diſtare à linea* K *plani, quantum eſt idem ſpatium* C. *In conſtruenda optica elevatione* D, *viſuales ex punctis lineæ* L *dabunt lineas latitudinis; lineas vero altitudinis accipies ex lineis veſtigii contracti, ut in figura. In formando ſtylobata nitido* EF, *locum anguli* H *dabit concurſus latitudinis ex linea* L *uſque ad* M, *& altitudinis ex linea* K *uſque ad* I. *Concurſus tum ejuſdem altitudinis, tum latitudinis ex* L *uſque ad* O, *dabit angulum* N. *Demum altitudinem anguli* P *accipies ex* K *uſque ad* Q; *latitudinem ex* L *uſque ad* R.

The Eighth Figure.

The Projection of a Pedeſtal in Perſpective.



IF you would draw a Pedeſtal, with the Projecture of its Cap and Baſe, you muſt begin with the Geometrical Elevation A, by drawing ſuch occult Lines as are neceſſary, as well ſide ways to the Perpendicular L, as downwards for making the Geometrical Plan B, whoſe Diſtances muſt be transferr'd, and carry'd into the Space G. If the Meaſures of the Length be placed the Diſtance of the Space C, from thoſe of the Breadth, the Perſpective Plan will then appear removed within the Ground-line K, as much as the ſaid Space C is. In the Conſtruction of the Perſpective Elevation D, the Viſuals drawn from the Points of the Line L, give the Lines of the Breadth; and thoſe of the Height are taken from the Lines of the Perſpective-Plan, as in the Figure. In delineating the clean or finiſh'd Pedeſtal EF, the Interſection of the Breadth from L to M, with the Height from K to I, gives the preciſe Place of the Corner H. The Interſection of the ſame Height with the Breadth LO, gives the Angle N. Laſtly, the Angle P is found by the Interſection of the Height KQ, with that of the Breadth LR.

FIGURA NONA.

Optica delineatio Architecturæ Jacobi Barozzii; & primum, de Stylobata Ordinis ETRUSCI.

ERSPECTIVA nuſquam clariùs emicat, quàm in Architectura. Iccirco tibi ob oculos pono Architecturam Jacobi Barozzii, quem à patria nuncupant Il Vignola, *reliquis fortaſſe uſitatiorem; in eaque continetur elevatio geometrica ſingulorum quinque Ordinum, qui vocantur, Etruſcus, Doricus, Ionicus, Corinthius, & Romanus vel Compoſitus; delineando ſeorſim partes cujuſcunque Ordinis in figuris grandioribus. Elevationi geometricæ ſuum veſtigium nos addemus; ex veſtigio autem & ex elevatione opticè deformatis, eliciemus apparentias ſolidorum juxta regulam traditam. Exempli gratia, ſi delineare velis ſtylobatam quadratum & pilam Ordinis Etruſci, præter elevationem geometricam* A *delineare oportet veſtigium geometricum* B, *ex ambobus autem opticè contractis formatur ſtylobata nitidus* D, *cum anta & pila exiſtente ad latus, accipiendo altitudines à linea plani, latitudines à linea perpendiculari ad ipſum planum. In alia delineatione poſuimus pilam ex adverſo, ut eis omni modo delineandis aſſueſcas.*

Ad vitandam confuſionem linearum, proderit ut figuræ fiant his noſtris multò grandiores: in quem finem ſingulis paginis appoſita eſt ſcala modulorum. Hoc nomine intelliguntur partes æquales, in quas dividuntur lineæ latitudinis & altitudinis elevationum geometricarum; ac lineæ latitudinis & longitudinis veſtigiorum geometricorum. Si moduli ſint parvi, ſubdividuntur ſinguli in duodecim partes; ac prout fuerint grandiores, ſubdividuntur in partes triginta, vel ſexaginta, vel centumviginti. Modulos Etruſcum Doricumque in partes duodecim; reliquos autem in octodecim partiti ſunt.

The Ninth Figure.

The Architecture of Vignola *in Perſpective; and firſt, of his Pedeſtal of the* TUSCAN *Order.*

ERSPECTIVE never appears more graceful, than in Architecture; for which Reaſon I preſent you with that of *James Barozzi*, from his Country generally call'd *Vignola*; which perhaps is more in uſe than any other; and contains the Geometrical Upright of each of the five Orders, *viz.* the *Tuſcan*, *Dorick*, *Ionick*, *Corinthian*, and the *Roman* or *Compoſite*; together with a ſeparate Delineation of the Parts of each Order, in larger Figures. To this Geometrical Elevation we ſhall add the Plan, and, from both of them reduc'd into Perſpective, ſhall draw the Appearances of Solids, according to the Rule before laid down. For Example: If you would draw the ſquare *Tuſcan* Pedeſtal and its Pilaſter, you muſt, from the Geometrical Elevation A, make the Geometrical Plan B; and from both of them reduc'd in Perſpective, draw the finiſh'd Pedeſtal D, with that of its Pilaſter on the Side, by taking the Heights from the Ground-line, and the Breadths from a Line perpendicular to the ſame. On the other Side we have plac'd the Pilaſter on the Back-part, that you may practiſe the Drawing them in any manner.

For avoiding the Confuſion of Lines, I adviſe you to make the Figures as much larger than ours as you can; for which purpoſe, there is annex'd a Scale of Modules to each Figure. By this Name we underſtand the equal Parts, into which, the Lines of the Breadth and Height of the Geometrical Uprights, and of the Breadth and Length of the Geometrical Plans, are divided. If the Modules are ſmall, they are ſubdivided into twelve Parts; and according as they are larger, into thirty, ſixty, or an hundred and twenty Parts. *I have divided the* Tuſcan *and* Dorick *Module into twelve Parts, and that of the other Orders into eighteen.*

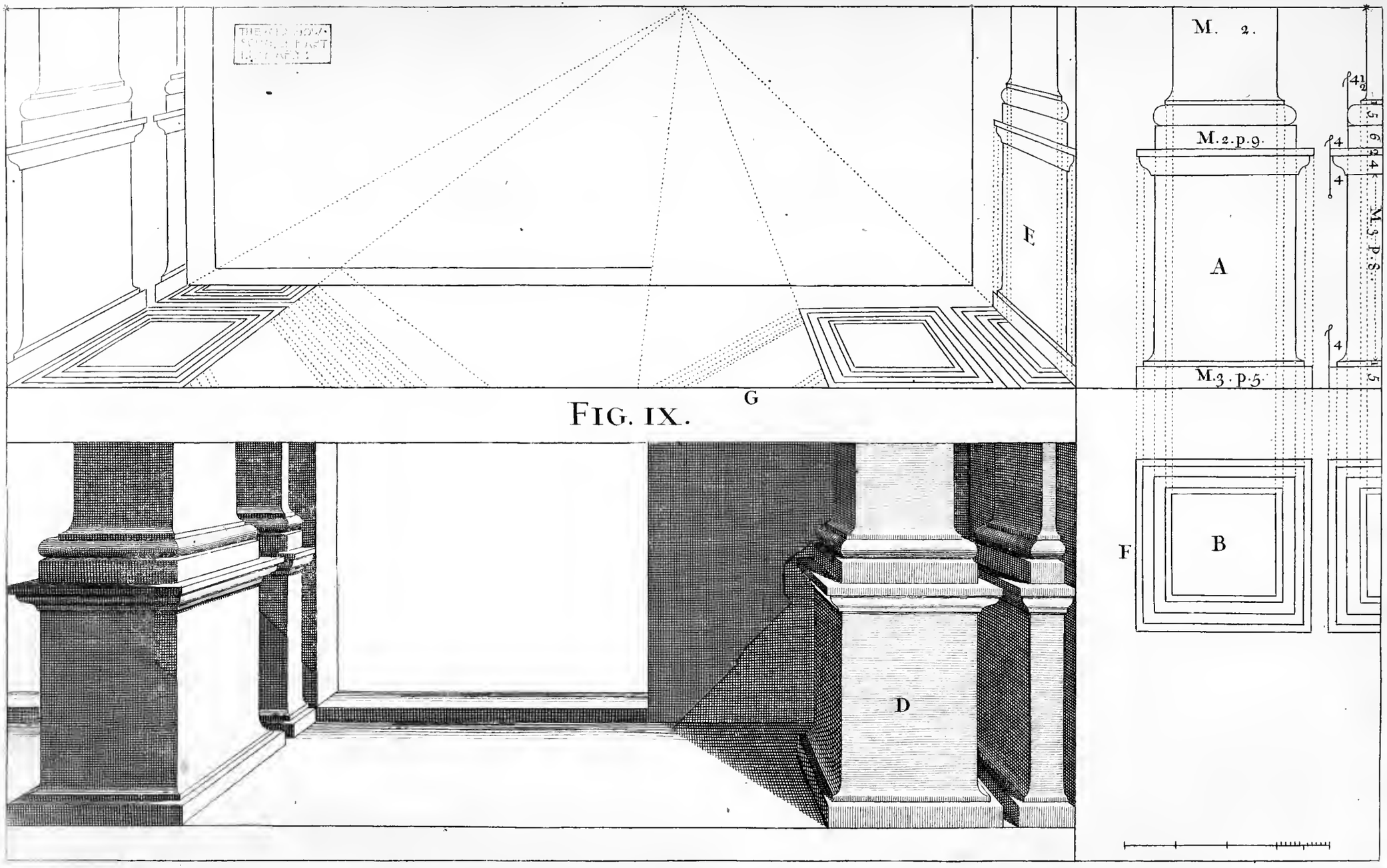


FIG. IX.

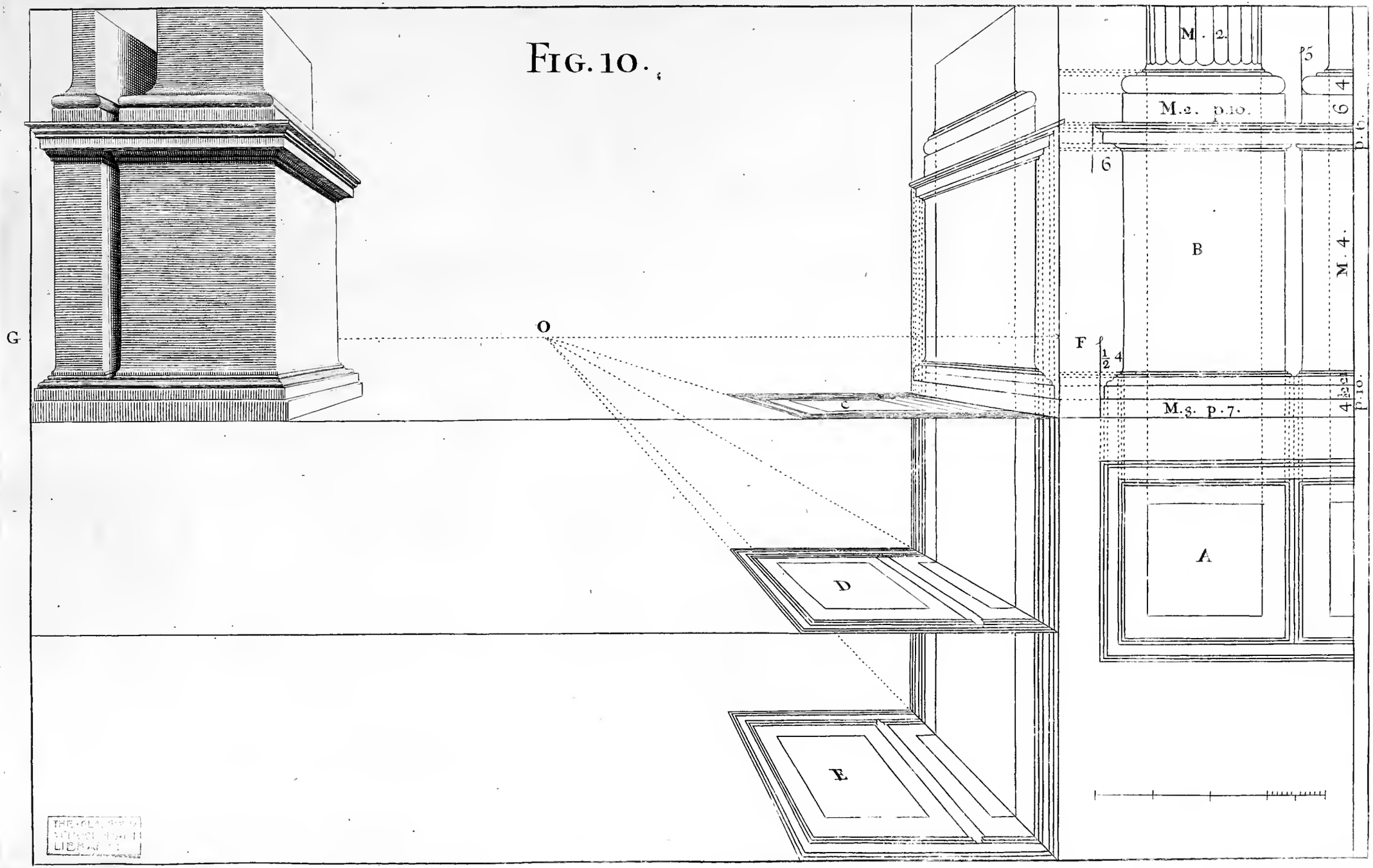


FIG. 10.
M. 2.
5
4
M.2. p.10.
6
p. 6.
6
B
M. 4.
G
O
F
1/2 4
4 1/2
p.10.
C
M.3. p.7.
A
D
E

FIGURA DECIMA.

Optica deformatio ſtylobatæ DORICI; ubi de modo vitandi confuſionem, in veſtigiis delineandis.

LEVATIO geometrica B *ſtylobatæ Dorici continet eandem ſymmetriam partium quæ habetur apud Barozzium; ex eaque eruitur veſtigium geometricum* A *per lineas occultas, quæ deſcendant ex punctis terminativis præcipuarum projecturarum. Earundem projecturarum diſtantiæ transferendæ ſunt in lineam elevationis, notando puncta quæ neceſſaria ſunt ad deformandam elevationem longitudinis ſtylobatæ.*

Si ob propinquitatem lineæ plani ad lineam horizontis, veſtigium evadat confuſum, fiant in diſtantia congrua ſub linea plani aliæ lineæ planorum ipſi parallelæ, cum ſuis veſtigiis. Quid autem emolumenti afferat diſtantia major præ minori, oſtendit veſtigium E *diſtinctiùs veſtigio* D. *Singula hæc veſtigia fiunt notando in linea cujuſlibet plani menſuras latitudinis & longitudinis veſtigii* A, *& ducendo lineas ad eadem puncta oculi ac diſtantiæ.*

Stylobatam nitidum deſcripſimus ex parte G, *tum ex neceſſitate, tum ut videat, pro diſtantia* FO, *uſurpandam eſſe diſtantiam* GO *penitus æqualem.*

The Tenth Figure.

A DORICK *Pedeſtal in Perſpective; with the Manner of avoiding Confuſion, in deſigning the Plans.*

THE Geometrical Elevation B has the ſame Members and Proportions, as the *Dorick* Pedeſtal of *Vignola*; and the Geometrical Plan A is form'd, by letting fall occult Lines from the principal Projectures of the Upright. Occult Lines are alſo to be continued to the Perpendicular F, from the ſeveral Members requiſite for elevating in Perſpective the Length of the Pedeſtal.

When, by reaſon of the too near Approach of the Ground-line to that of the Horizon, the Plan becomes thereby confus'd; draw at a convenient Diſtance underneath, other Ground-lines parallel to the firſt, together with the Plans in Perſpective. And of what Advantage the Removal of the Ground-line is, is evident from the Plan E, which is much more diſtinct than the Plan D. Each of theſe Plans is made, by marking upon its reſpective Ground-line the Meaſures of the Breadth and Length of the Plan A, and by drawing Lines to the ſame Points of Sight and Diſtance, which were firſt aſſign'd.

We have plac'd the finiſh'd Pedeſtal on the Side G, partly for want of Room, and partly to ſhew, that the Point of Diſtance G is there made uſe of, GO being equal to FO.

FIGURA Undecima.

Stylobatæ IONICI deformatio; ubi de vitanda confuſione in elevationibus.

UM in Figura præcedenti, tum rurſus in hac, oſtendimus quid agendum ſit ubi veſtigia A A *nimium obliquentur, unde oritur confuſio; præcipuè in lineis parallelis quæ exhibent latitudines. Non minor difficultas interdum occurret in elevationibus longitudinis opticè deformandis; quòd videlicet, ob nimiam earum obliquitatem, pervium non ſit altitudines ſingularum projecturarum probè diſcernere ac deſignare. Ad ſcopulos iſtos declinandos, loco elevationis* B *adhibebitur elevatio* C, *quæ diſtinctior eſt, tum illâ, tum duabus intermediis* D & E, *ob majorem diſtantiam quam habet à puncto oculi.*

In delineando ſtylobata nitido latitudines accipientur ex ultimo veſtigio, ponendo unam cuſpidem circini in linea perpendiculari, quæ proxima eſt literæ O: *altitudines accipientur ex elevatione* C, *ponendo unam cuſpidem circini in linea plani, ut in præcedentibus oſtenſum eſt.*

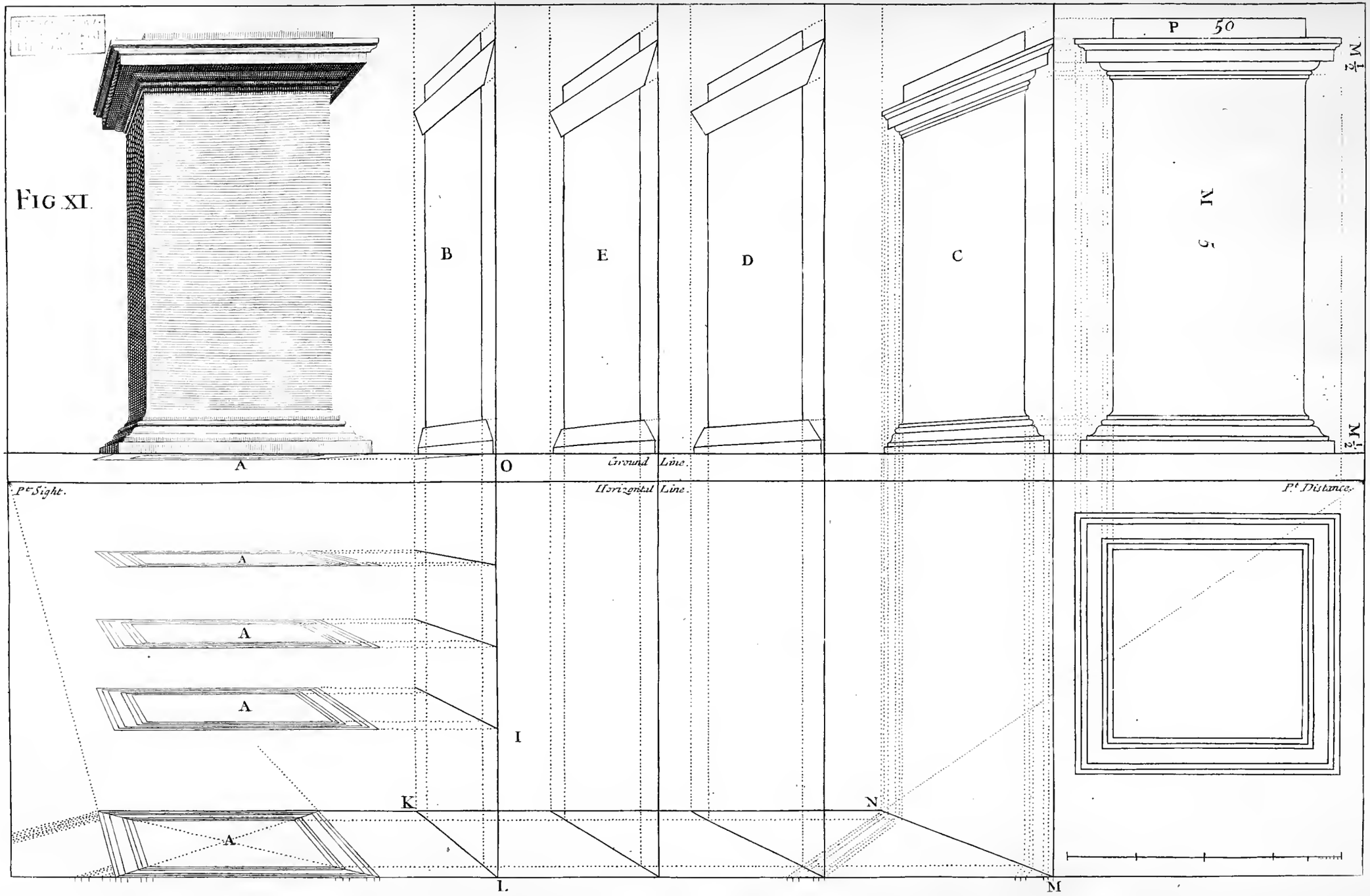
The Eleventh Figure.

The IONICK *Pedeſtal in Perſpective, with the Manner of avoiding Confuſion in Elevations.*

S in the foregoing Figure, ſo in this alſo is ſhewn what is to be done, where the Plans A A lie ſo oblique, as to cauſe Confuſion; eſpecially in the Parallel-lines which give the Breadths. The like Inconvenience often happens in elevating the Lengths in Perſpective; when by their too near Approach to the Point of Sight, the Contour of the ſeveral Mouldings can't be diſtinctly delineated: For avoiding which, inſtead of B you may make uſe of the Elevation C, which is not only more diſtinct than the former, but better than either of the two intermediate ones D or E, by ſo much as it is more remote from the Point of Sight.

In deſigning the finiſh'd Pedeſtal, the Breadths are taken from the loweſt Plan, by ſetting one Point of the Compaſſes in the perpendicular Line O L; the Heights are taken from the Elevation C, by placing one Point of the Compaſſes in the Ground-line, as has been ſhewn before.

FIG XI.


P 50
M 1/2
M 1/2
B
E
D
C
A
O
Ground Line.
Horizontal Line.
Pt Sight.
Pt Distance.
A
A
A
A
I
K
N
L
M

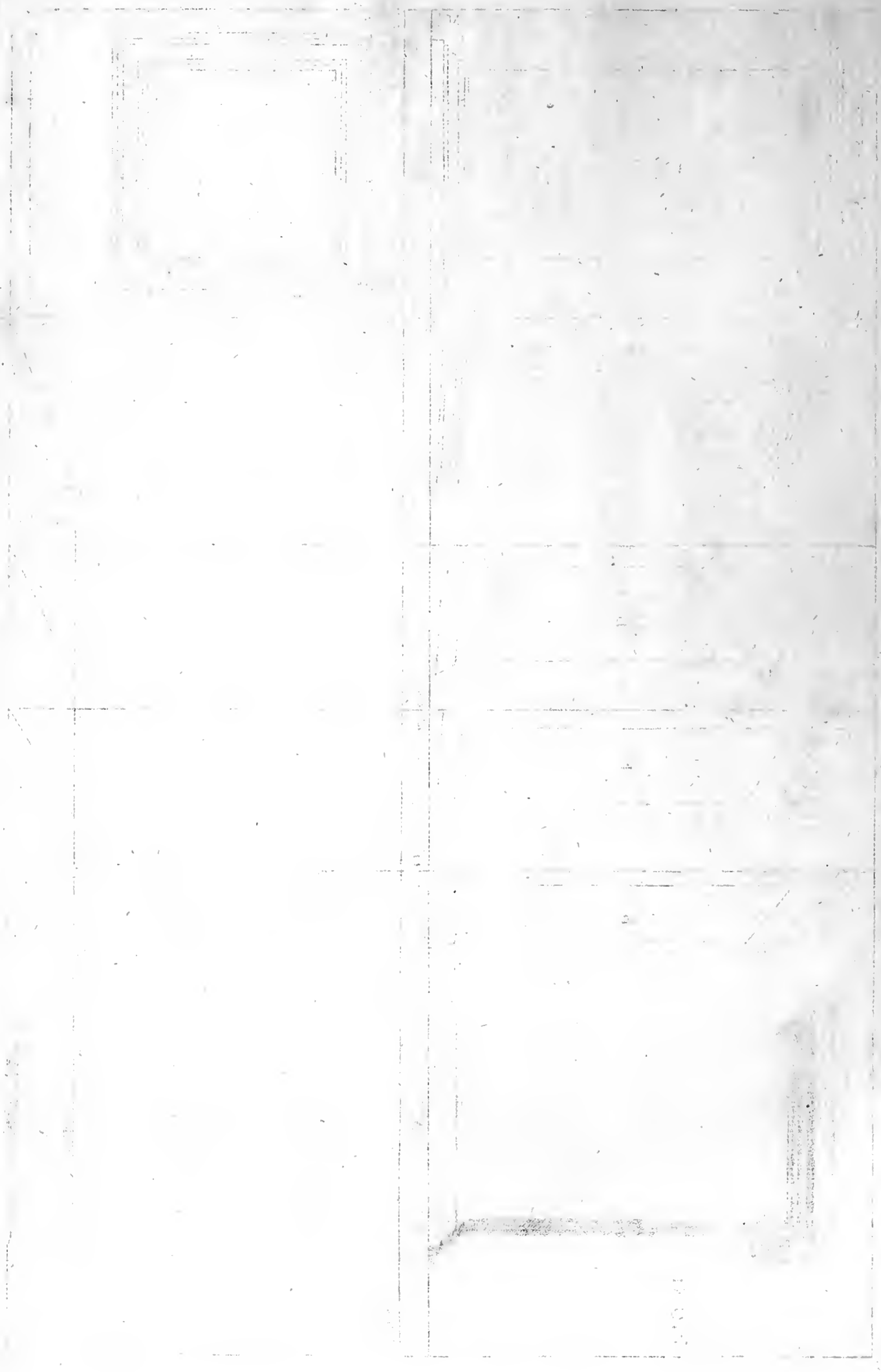


FIG. XII.

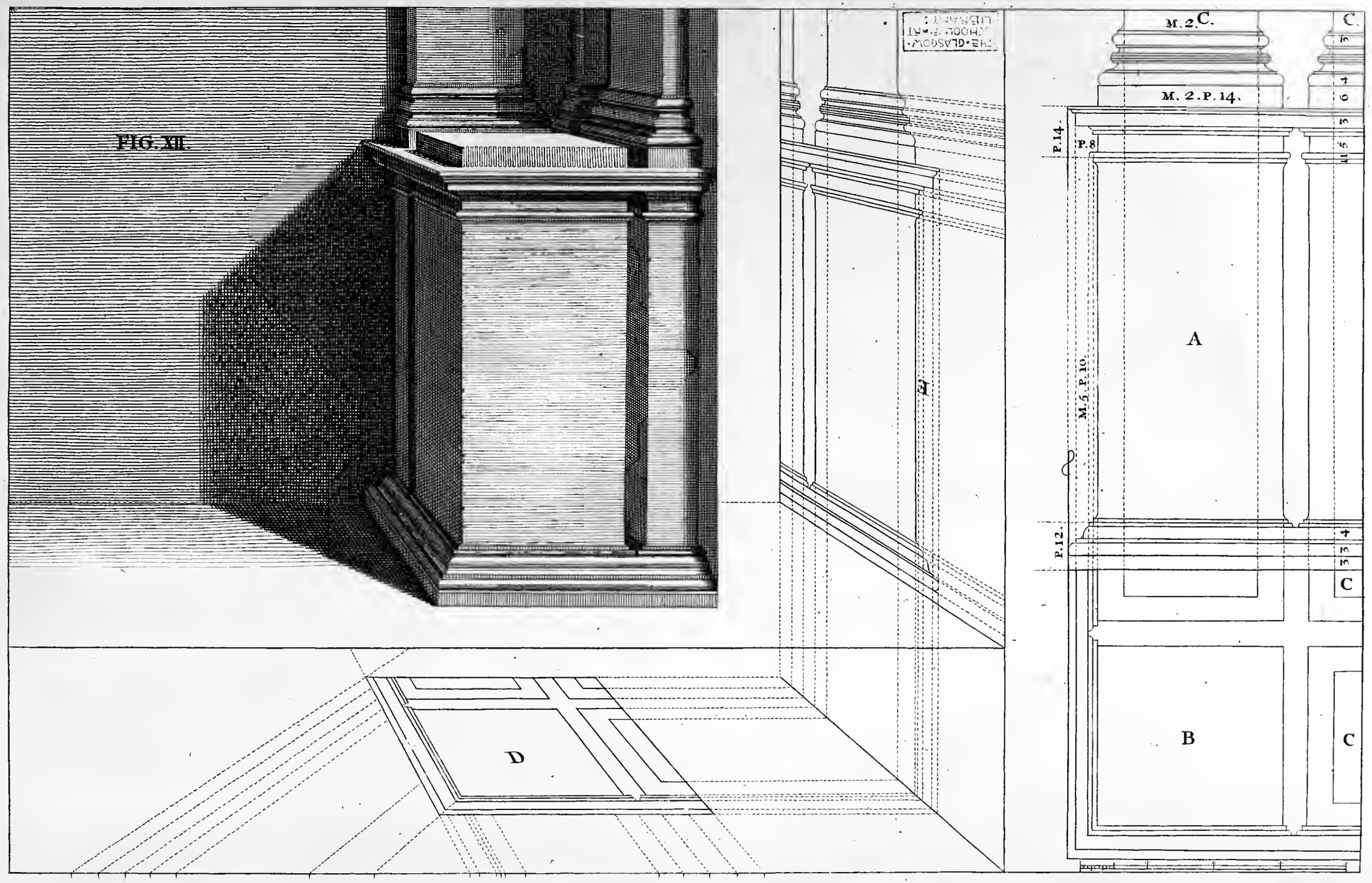


Figura Duodecima.

Deformatio ſtylobatæ CORINTHII, cum duabus pilis.

ORNATUS gratiâ, ſtylobatæ Corinthio additæ ſunt pilæ, quæ pone columnas locari ſolent. Ut autem pilæ clariùs appareant, columna omiſſa eſt, cujus deformandæ rationem nondum tradidimus. Menſuras omnes ex Barozzio acceptas eſſe demonſtrat ipſum ſchema, in quo elevatio geometrica ſtylobatæ eſt A; *veſtigium ejus geometricum eſt* B; *pilæ* CC. *Veſtigium opticè contractum eſt* D. *Elevatio longitudinis ſtylobatæ opticè contracta eſt* E, *ac methodo conſuetâ ex iis eruetur ſtylobata nitidus cum ſuis pilis.*

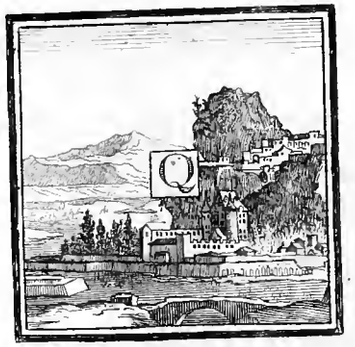
The Twelfth Figure.

The CORINTHIAN *Pedeſtal, with its Pilaſters, in Perſpective.*

OR Ornament's ſake, we have added to this *Corinthian* Pedeſtal the Pilaſters, which are uſually placed behind Columns: And that they may be the more perſpicuous, have left out the Column, not having yet ſhewn the Manner of putting it in Perſpective. The Scheme ſhews the Meaſures are taken from *Vignola*; in which the Geometrical Upright of the Pedeſtal is A; the Geometrical Plan of the ſame is B; that of the Pilaſters CC. The Plan in Perſpective is D, the Elevation in Perſpective is E; from which the finiſh'd Pedeſtal and Pilaſters are drawn by the uſual Method.

Figura Decimatertia.

Projectio ſtylobatæ, ordinis Compoſiti.



UUM pagina non caperet integrum ſtylobatam tantæ molis, fingere oportuit detractum illi eſſe aliquid de trunco; ac partem ſupremam ſtylobatæ ſuſtentari ab infima, non immediatè, ſed per quatuor aſſeres; eiſque impoſitam fuiſſe adjumento funium ſuſpenſorum ex trochlea. Elevatio geometrica ſtylobatæ eſt B; *veſtigium geometricum eſt* A. *Ex his eruitur optica delineatio veſtigii* C *& elevationis* D: *ac poſtea formatur ſtylobata nitidus* E, *accipiendo latitudines ex veſtigio* C, *altitudines ex elevatione* D.

The Thirteenth Figure.

The Projection of a Pedeſtal, of the Compoſite *Order, in Perſpective.*

WANTING Room in this Page to deſcribe ſo large a Pedeſtal entire, we imagine it to have loſt part of its Trunk, and the upper part to be ſet on the lower; not immediately, but on four Croſs-pieces that intervene; and for placing it thereon, we ſuppoſe the Aſſiſtance of Ropes and a Pulley. The Geometrical Elevation of the Pedeſtal is B; its Plan A; from whence are found their Projections in Perſpective D and C. Then taking the Breadths from the Plan C, and the Height from the Elevation D, you complete the finiſh'd Pedeſtal E.

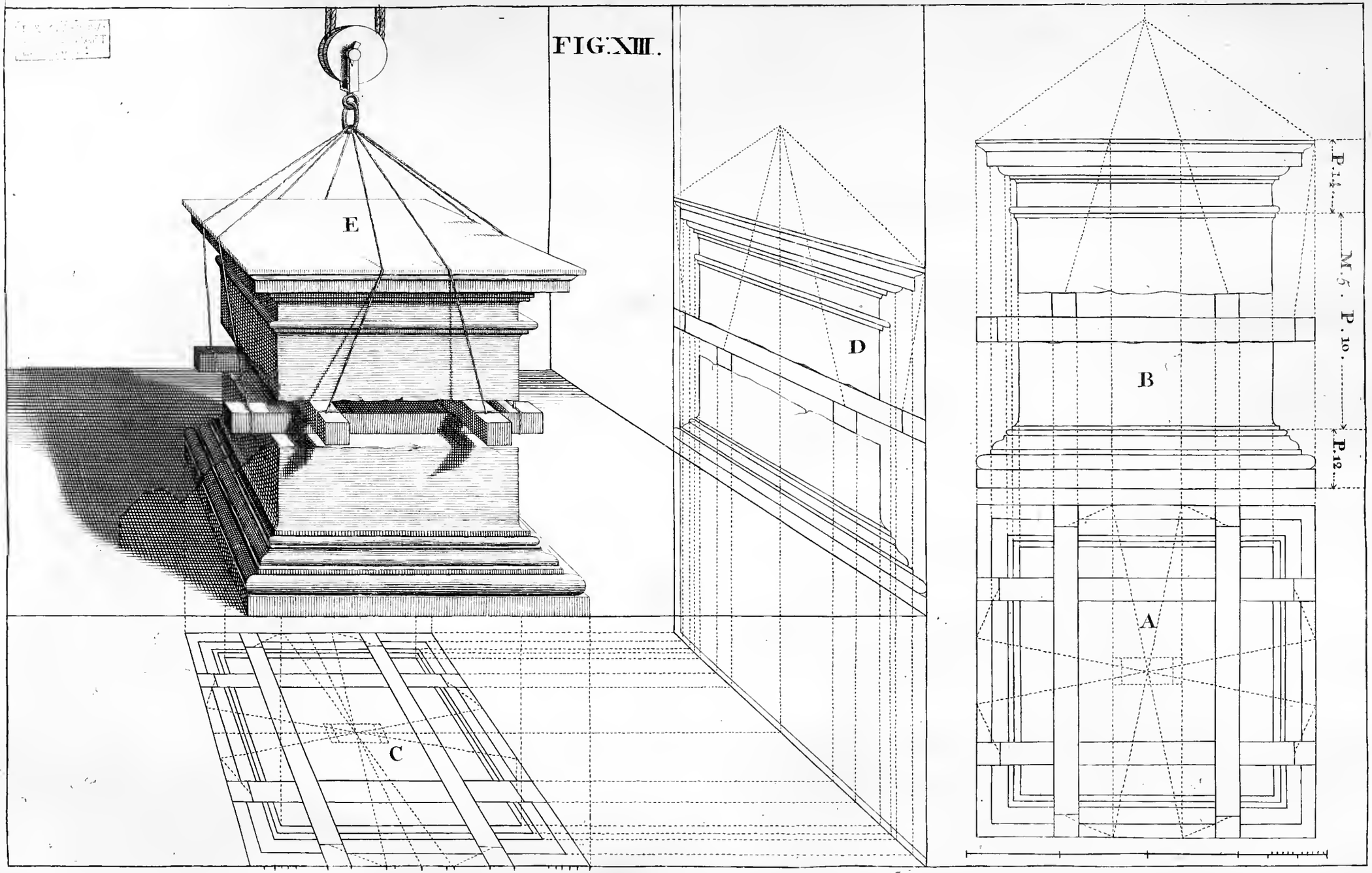
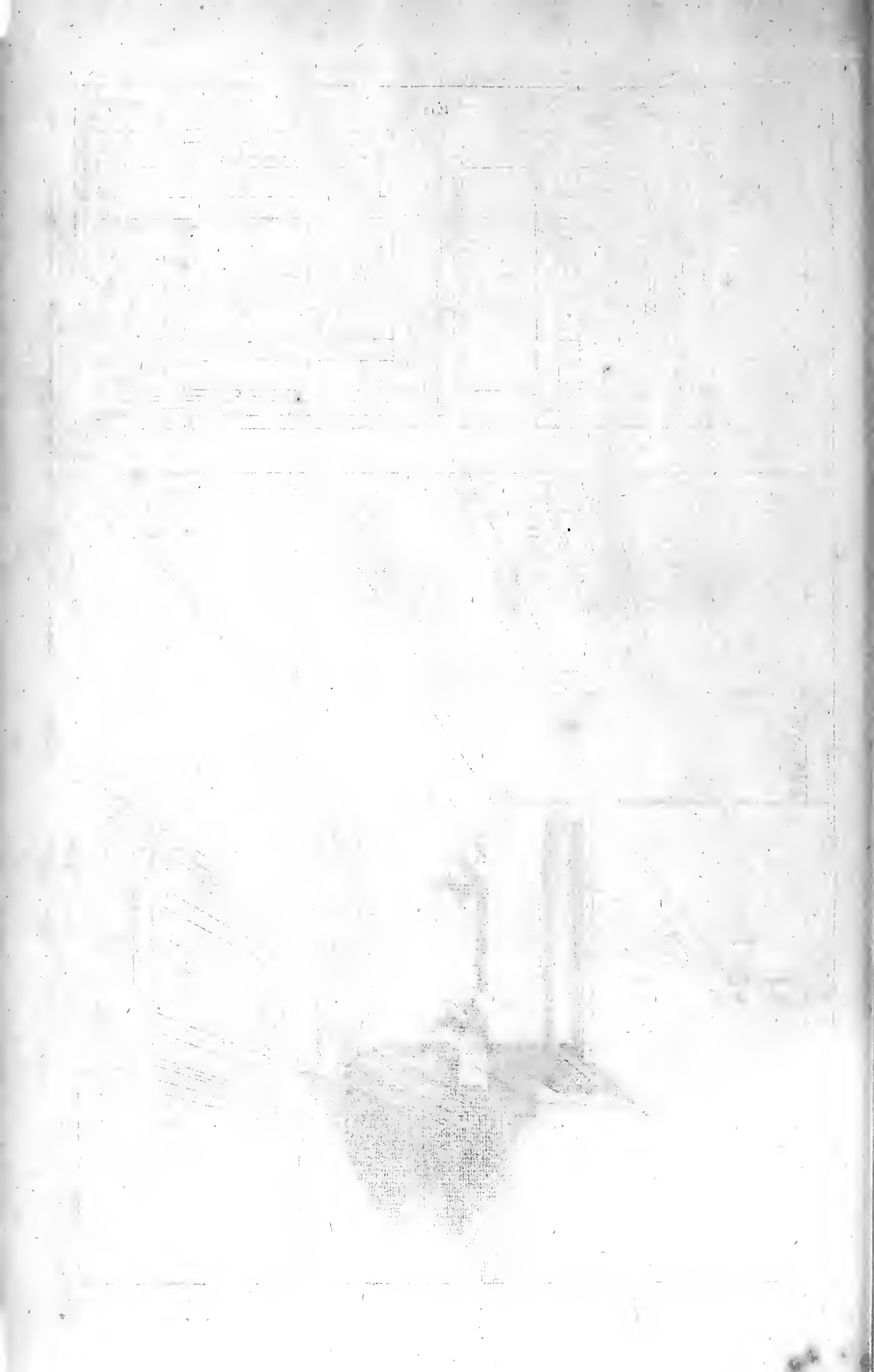


FIG. XIII.
E
D
C
B
A
P. 14.
M. 5. P. 10.
P. 12.



THE GLASGOW SCHOOL OF ART LIBRARY

Fig. XIV.

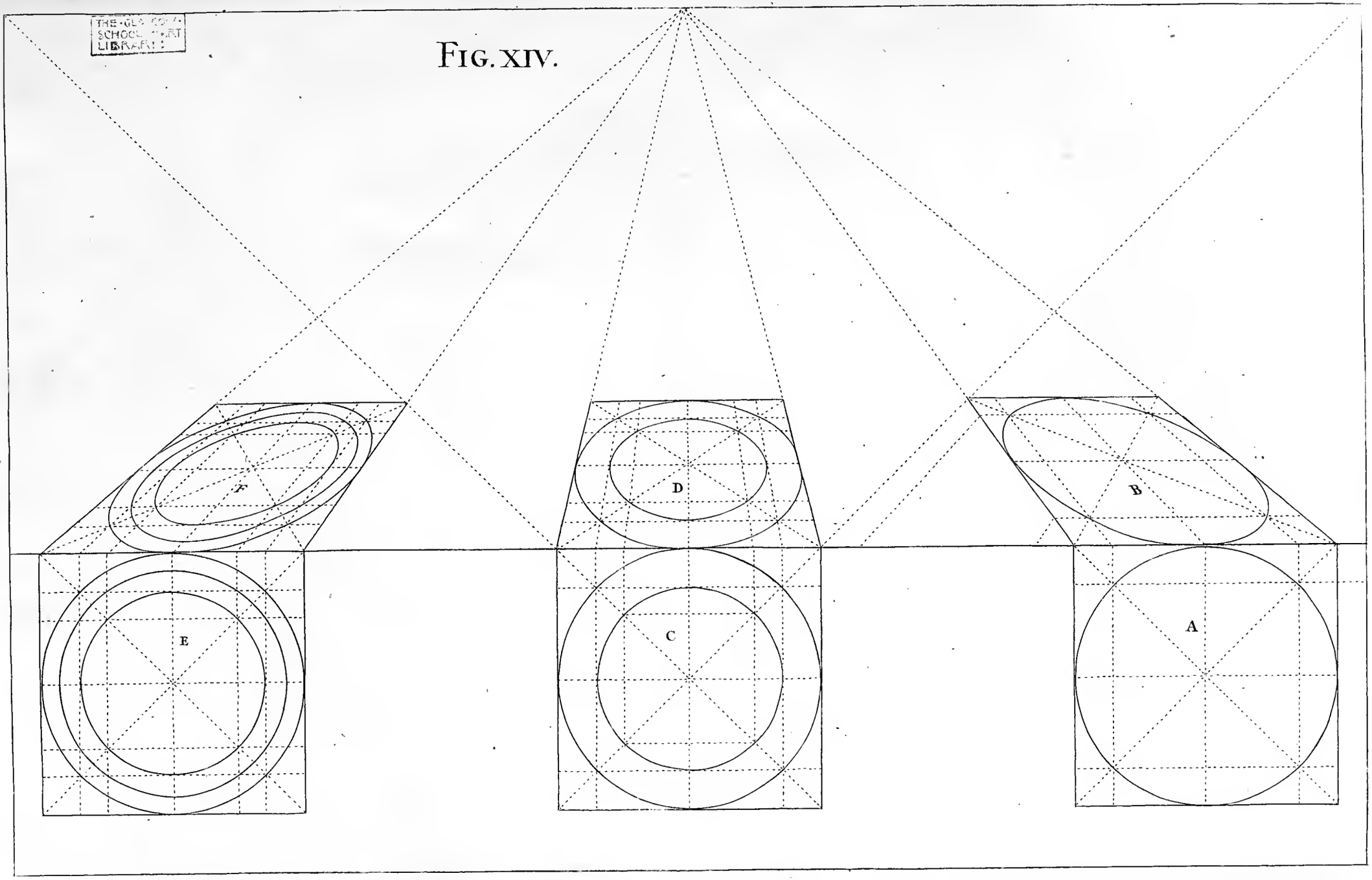


Figura Decimaquarta.

Deformatio Circulorum.

T ſtylobatis imponere liceat columnas cum ſuis baſibus & capitellis, docendus eſt modus qui ſervandus eſt in projectione optica circulorum, tum ſingularium, tum duplicium aut multiplicium circa idem centrum.

Veſtigium geometricum A *conſtat quadrato in quatuor partes æquales diviſo, cui circulus inſcribitur, additis diagonalibus: & ubi hæ ſecant circulum, fiunt rectæ parallelæ ad ſingula latera ipſius quadrati. Deinde quadratum cum omnibus diviſionibus optice imminuitur; ac tum per quatuor puncta ubi tres lineæ rectæ ſe interſecant, tum per quatuor extrema reliquarum duarum diametrorum circuli, ducetur cum venuſtate circumferentia circuli* B. *Si addere velimus alium circulum, veſtigio geometrico* C *inſcribitur aliud quadratum; indeque habebitur optica delineatio duplicis circuli* D. *Inter hos duos quomodo liceat deſcribere tertium, per octo ſectiones quadratorum, oſtendunt figuræ* E *&* F. *Uno verbo, circuli deſcribuntur per quadrata, adhibendo ſectiones viſualium cum parallelis ad lineam plani; ac nullum eſt punctum in quadratis & circulis* A, C, E, *cui per ſectiones illas nequeat inveniri punctum correſpondens in quadratis & circulis* B, D, F. *Nihilominus ubi opus habeas pluribus circulis, autor tibi ſum ne multiplices quadrata, plus confuſionis allatura tibi quam adjumenti.*

The Fourteenth Figure.

Circles in Perſpective.

THAT upon Pedeſtals you may be able to place Columns with their Baſes and Capitals, it is requiſite you ſhould know the Manner of putting Circles into Perſpective; whether ſingle, double, or many concentrick.

The Geometrical Plan A conſiſts of a Square with a Circle inſcrib'd, whoſe Diameters divide it into four equal Parts; and the Diagonals being drawn where they interſect the Circle, continue Lines parallel to each Side of the Square. The Square, with all its Diviſions, being put in Perſpective; by the four extreme Points of the Diameters, and by thoſe of the Interſection of the Diagonals, you neatly trace by hand the Circumference B. If you would add another Circle, you muſt inſcribe another Square, as in the Plan C; from whence you find in Perſpective the double Circle D. Between theſe two Circles, you may, by the eight Interſections of the Squares, deſcribe a third; as is evident by the Figures E and F. In a word, all Circles are deſcribed by the help of Squares, tracing them by the Interſections of the viſual Lines, with thoſe parallel to the Ground-line: Nor is there any Point in either the Squares or Circles A, C, E, whoſe correſpondent Point may not be readily found by ſuch Sections, in the reſpective Squares and Circles B, D, F. Nevertheleſs, where your Work requires many Circles, I would adviſe you to uſe as few Squares as poſſible; leſt they perplex, rather than aſſiſt you.

Figura Decimaquinta.

Optica delineatio Columnæ.

ESCRIPTURI fruſtum cylindricum I *uniforme, fiet elevatio* A, *& veſtigium geometricum* B, *ſaltem quoad medietatem. Ex hoc optice deformato, ut vides in* C, *ducendæ ſunt parallelæ tum latitudinis ad viſualem* D, *tum elevationis ad viſualem* E; *ex quibus deſcribentur circuli opticè contracti* F & L, *accipiendo latitudines ex veſtigio* C, *altitudines ex perpendiculari* M; *& juxta hanc methodum circuli* F & L *fiunt ſine ope quadratorum. Demum ducendæ ſunt perpendiculares* G & H, *quæ tangant circulos* F & L *in punctis terminativis maximæ latitudinis.*

Nullum eſt punctum in veſtigio C, *cui per lineas latitudinis & elevationis nequeat inveniri locus correſpondens in circulo* F. *Exempli gratia; locus puncti* 6 *eſt punctum* 7. *Hunc autem locum habemus per tres lineas,* CD, DE, E7.

In delineandis duobus fruſtis cylindricis, cum ſummo & imo ſcapo, eandem regulam ſervare oportebit.

The Fifteenth Figure.

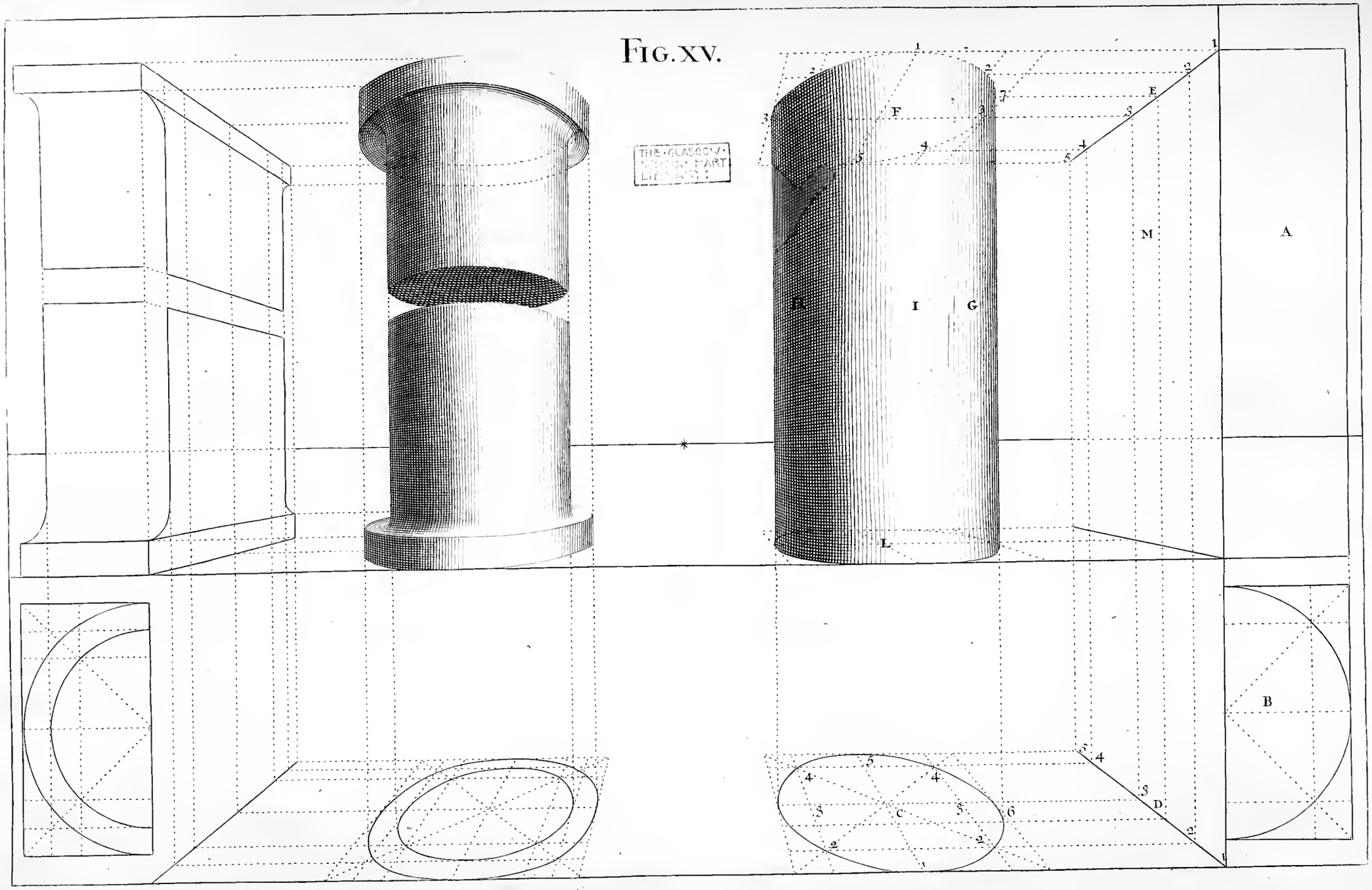
A Column in Perſpective.

EING to deſcribe Part of the Shaft of a Pillar without Projectures, make the Elevation A, and the Geometrical Plan B, at leaſt to the middle: From this brought into Perſpective, as you perceive in C, muſt be drawn Parallels both of Breadth to the Viſual D, and of Elevation to the Viſual E; from which are deſcrib'd the Circles in Perſpective F and L, taking the Breadths from the Plan C, and the Heights from the Perpendicular M: And according to this Method the Circles F and L are made, without the Help of Squares. Laſtly, draw the Perpendiculars G and H, by the Points which terminate the greateſt Breadth of the Circles F and L.

There is not a Point in the Plan C, but what, by means of the Lines of Breadth and Elevation, may be found in the Circle F. For Inſtance, the Place of the Point 6 is 7, which is found by the three Lines CD, DE, E7.

In deſigning the two Pieces of a Pillar, with the Projecture of the Fillet at Head and Foot, you muſt obſerve the very ſame Rule.

Fig. XV.



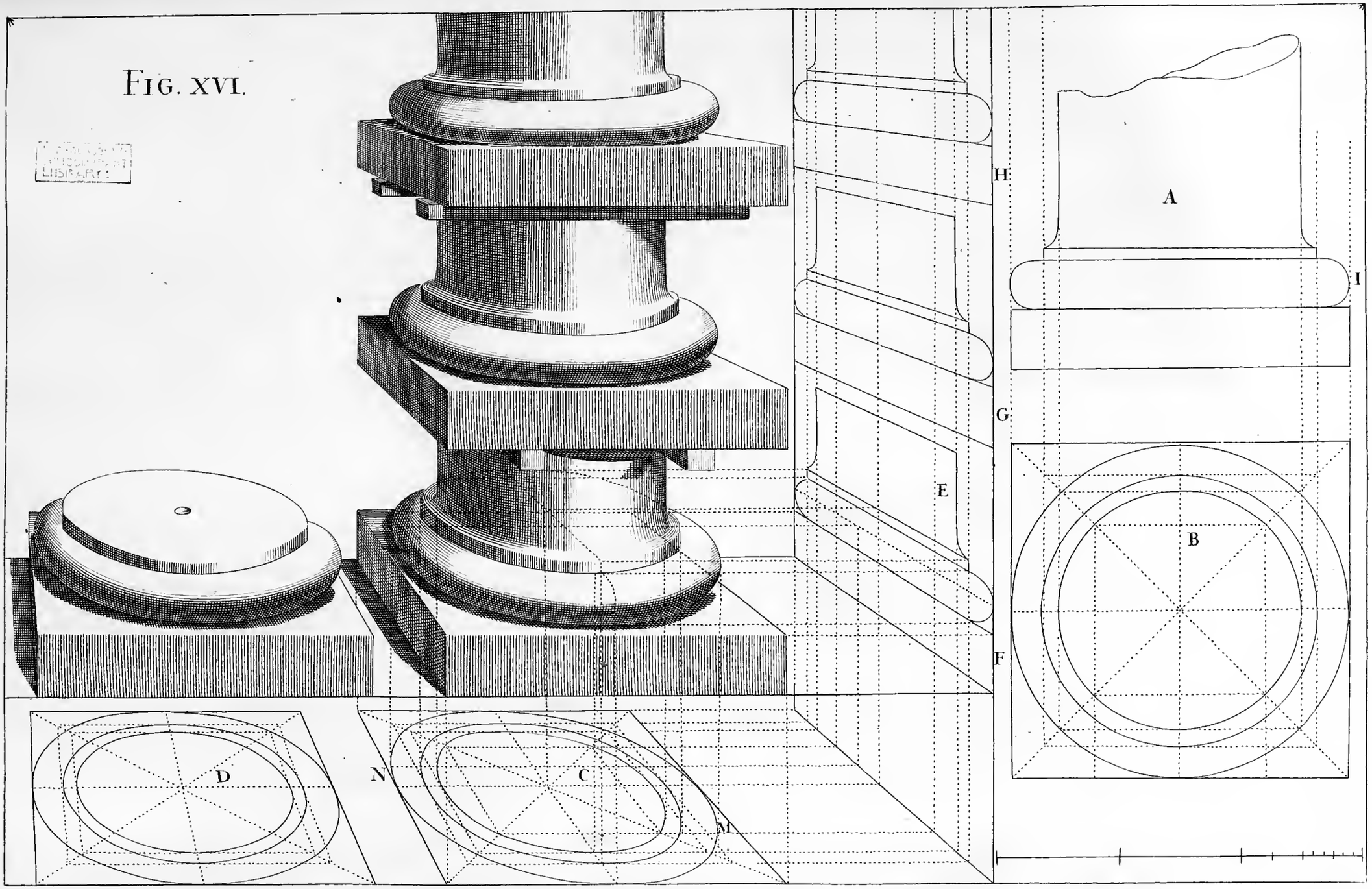


FIG. XVI.

LIBRARY

Figura Decimaſexta.

Optica projectio baſis ETRUSCÆ.

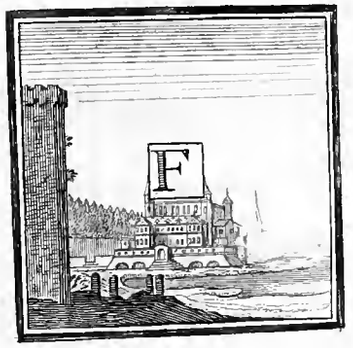
X elevatione geometrica A *cruitur veſtigium* B. *Hoc autem deformato in* C *&* D, *ex circulis veſtigii* C *habentur latitudines columnæ, quadræ, ac tori triplicis baſis: & eodem modo ex veſtigio* D *habentur latitudines quadræ ac tori ultimæ baſis. Ex maximis latitudinibus circulorum veſtigii* C *ereximus perpendiculares ad partes quæ ipſis reſpondent in baſi; ut agnoſcas quænam ſint puncta maximæ latitudinis in eiſdem partibus. Hæc puncta (quæ in circulo maximo veſtigii* C *ſunt* M *&* N) *invenientur tangendo circumferentiam uniuſcujuſque circuli regulâ parallelâ ad lineam perpendicularem* E. *Nam ſi figura exactè delineata fuerit, regula tanget ſingulos toros trium baſium in punctis maximæ hinc inde latitudinis.*

Magis laborandum erit in reperiendis altitudinibus quatuor baſium. Verum ſi ſedulo inſpiciatur deformatio elevationis F, *aliarumque duarum, (quæ factæ ſunt, notatis in linea perpendiculari* E *diviſionibus deſumptis ex elevatione geometrica* A) *conſtabit, nullum eſſe punctum in circulis veſtigii* C, *cui nequeat inveniri punctum correſpondens in toro & quadra ipſius baſis, ut oſtendunt lineæ occultæ, quæ incipiunt ex* M *&* N. *Earum quælibet ex veſtigio* C *pervenit ad lineam viſualem, & continuatur cum linea altitudinis ex viſuali ad elevationem* F, *& cum alia linea latitudinis ex elevatione* F *ad baſim. Porrò ex figura conſtat, ſuperficiem ſuperiorem quadræ ſubduci oculis à columna, & aliquid ex parte poſtica tori quod cæteroqui conſpiceretur, abſcondi à quadra. Proinde torus, qui ex punctis maximæ latitudinis retrorſum flectitur, eouſque delineandus eſt, quoad hinc inde occurrat quadræ ipſum cooperienti. Præſtaret autem ſingula membra ita exactè delineari, quaſi eſſent diaphana; ut partes oculis imperviæ, omnino cohæreant cum partibus quæ ipſis conſpicuæ ſunt.*

Completâ delineatione, ſi figuram tuam ex perpendiculo puncti oculi ex debita diſtantia contemplatus fueris, omnes defectus facilè deteges & ſtatim corriges. Præcipuam diligentiam pones in formando & emendando toro, qui habet duas rotunditates; unam quatenus ambit columnam; alteram quatenus caret angulis, ut oſtendit elevatio geometrica in I.

The Sixteenth Figure.

The TUSCAN *Baſe in Perſpective.*



ROM the Geometrical Elevation A, is drawn the Plan B; which being put into Perſpective, as you ſee in C and D, from the Circles of the Plan C you have the Breadths of the Column, and of the Liſt, and *Torus* of the three Baſes: And after the ſame manner, by the Plan D, you have the Breadth of the Liſt and *Torus* of the laſt Baſe. From the greateſt Breadth of the Circles of the Plan C, we have erected Perpendiculars to the Parts that anſwer them in the Baſe, to the end that you may ſee where the Points fall, which terminate the greateſt Breadth of thoſe Parts. Theſe Points (which in the biggeſt Circle of the Plan C are M and N) are found by touching the Extremity of the Circumference with a Line parallel to the Perpendicular E: for if the Figure were exact, that Line would touch every *Torus* of the three Baſes in the extreme Points of their Breadth.

The Heights of the four Baſes are ſomething more difficult to be found. Nevertheleſs, if you conſider well the Elevation F, and the other two G and H, (which are made by tranſporting the Diviſions of the Elevation A upon the Perpendicular E) it will plainly appear, that there is no Point in the Circles of the Plan C, to which there may not be a correſpondent Point found in the *Torus* and Liſt of the ſaid Baſe; as the occult Lines ſhew, that ariſe from M and N; each of which is a Continuation of three Lines: The firſt of Breadth, from the Plan C to the Viſual; the ſecond of Height, from the Viſual to the Elevation F; the third of Breadth, from the Elevation F to the Baſe. Now, tho it's plain by the Figure, that the Body of the Column prevents the Sight of good part of the Fillet, and the ſame Fillet takes off from part of the *Torus*, which would otherwiſe be viſible; for which Reaſon the Back-part of the *Torus* is continu'd only till it meet the ſame: Yet it's certainly beſt to draw every Member complete, as tho the Work were tranſparent; that the Parts hidden from the Eye may the better agree with thoſe that are expos'd to it.

When your Draught is finiſh'd, if you view it at the due Diſtance, and perpendicularly to the Point of Sight, you'll readily diſcover and rectify what's amiſs. Your chief Care will be employ'd in ſhaping the *Torus*, difficult by reaſon of its Roundneſs both ways; namely, in the Contour of its Moulding, as in the Elevation I; and in the Circuit it makes about the Column.

Figura Decimaſeptima.

Deformatio baſis DORICÆ.

Dvitandam ſatietatem quam pareret nimia uniformitas, unam ex baſibus invertimus. Utraque autem baſis delineata eſt methodo quam tradidimus figurâ præcedenti. Eademque methodus adeò manifeſtè patet ex lineis occultis latitudinum & elevationum, ut ſuperfluum futurum ſit ipſam repetere.

The Seventeenth Figure.

The DORICK *Baſe in Perſpective.*

HAT you may not be tir'd with practiſing one and the ſame thing, I have here, for Variety-ſake, inverted one of the Baſes. Both of them are drawn after the Manner explain'd in the foregoing Figure; which is ſo evident from the occult Lines of the Plan and Elevation here given, that I think it ſuperfluous to ſay any more of it.

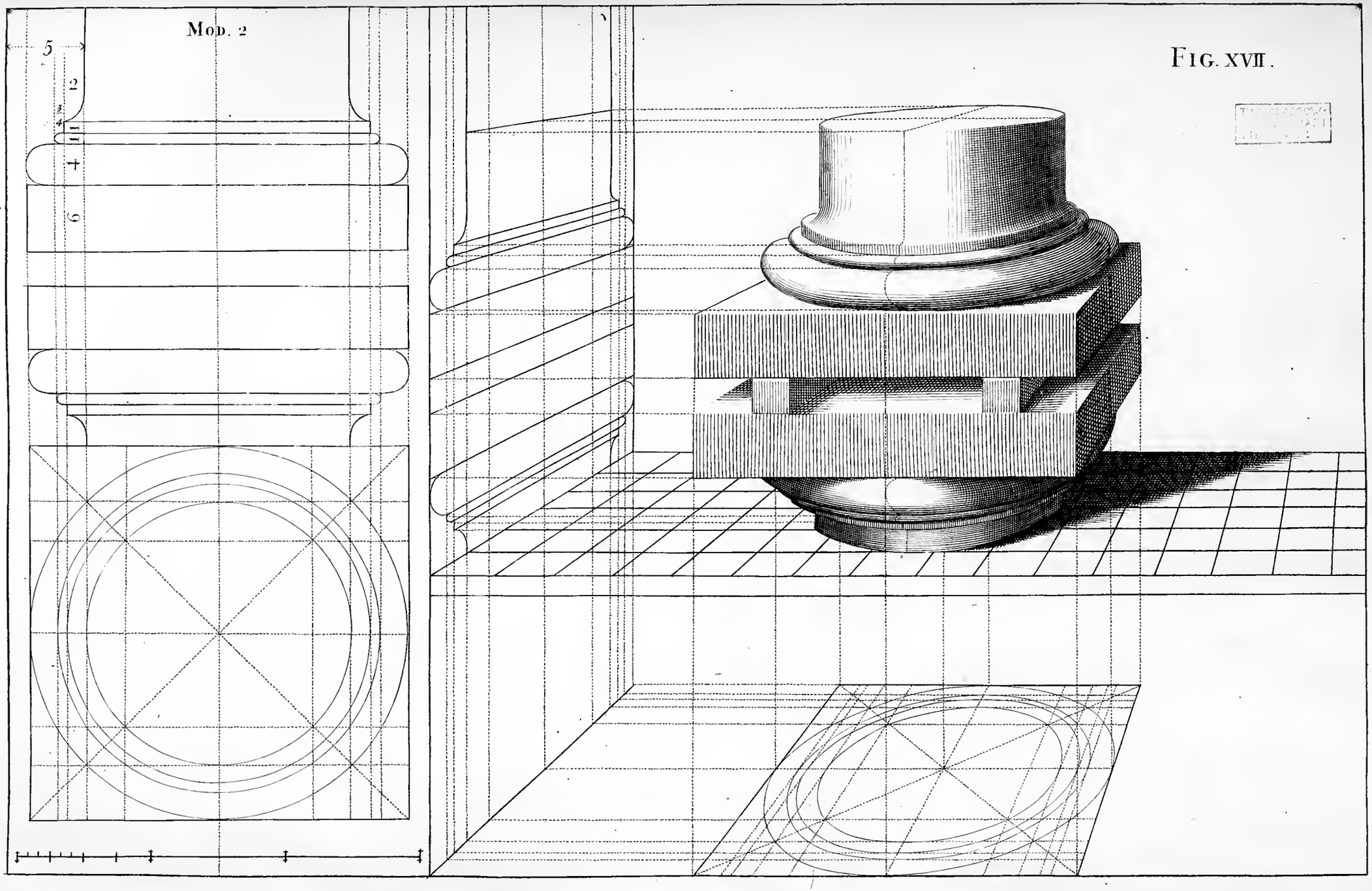


FIG. XVII.

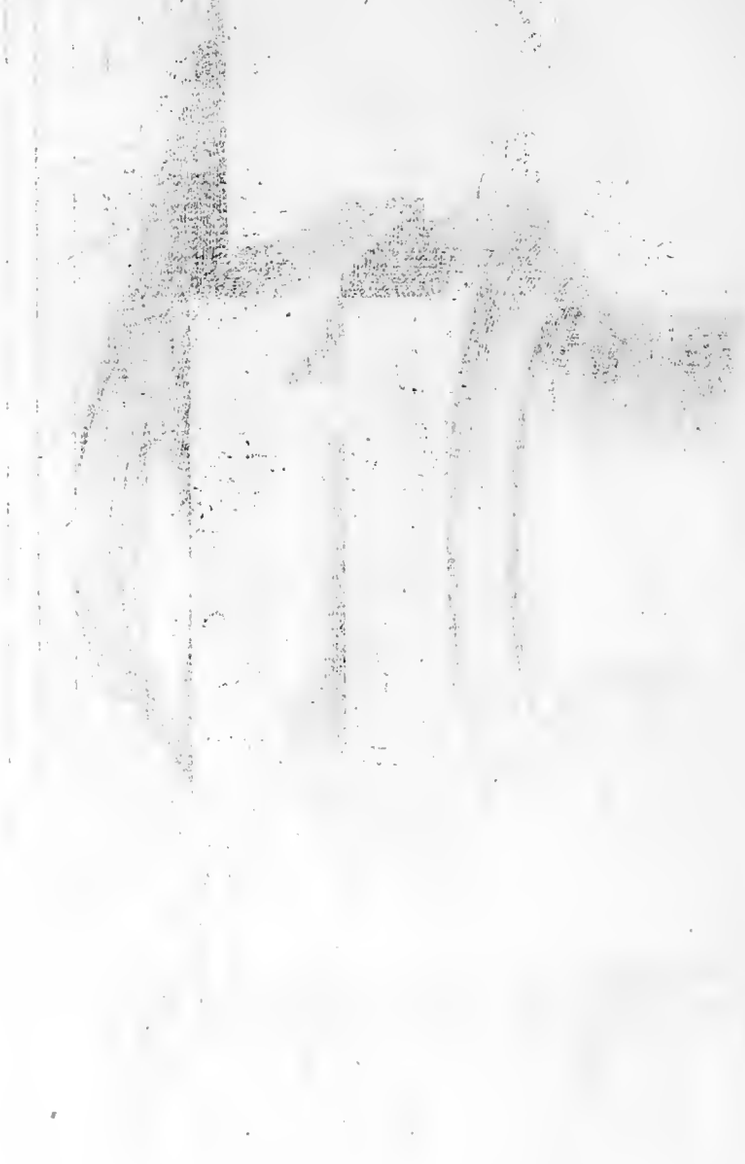


FIG: XVIII.

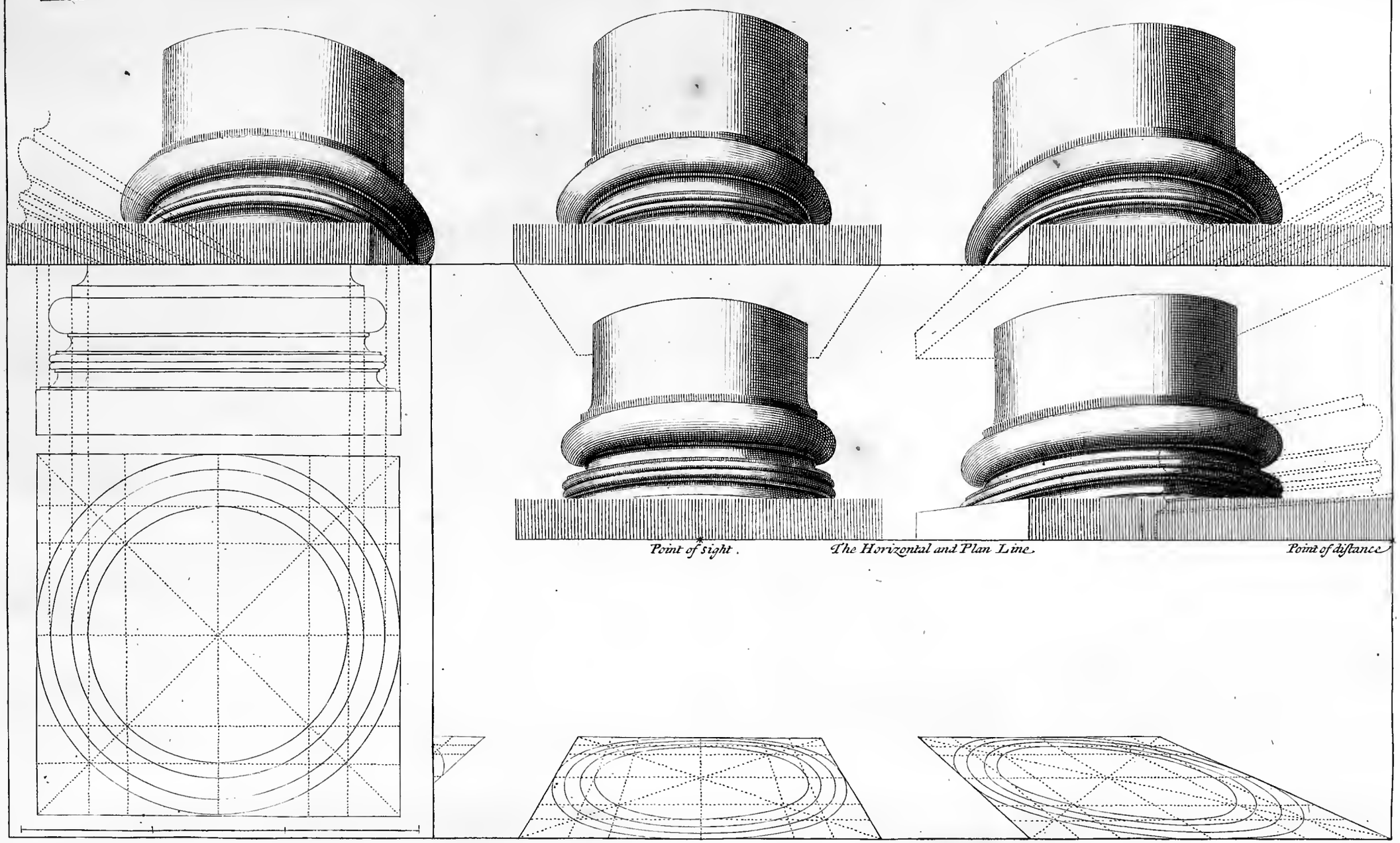

Point of sight.
The Horizontal and Plan Line.
Point of distance

Figura Decimaoctava.

Optica delineatio baſis IONICÆ.

X multitudine ac varietate figurarum hujus Operis, diſces, mi Lector, modum deformandi res demiſſas & ſublimes, magnas & parvas. In hac figura, linea cui baſes duarum columnarum incumbunt, eſt conjunctim linea plani, & linea horizontalis; linea cui baſes trium columnarum incumbunt, eſt altior linea horizontali. Quemadmodum autem, ſi linea plani ſit inferior linea horizontali, lineæ quæ tendunt ad punctum oculi & ad punctum diſtantiæ, aſcendunt ſurſum; ita ſi linea plani ſit ſuperior horizontali, lineæ quæ veniunt ad punctum oculi & ad punctum diſtantiæ, tendunt deorſum. Quòd ſi in eadem tabula ſint plura plana, eorumque aliqua ſint altiora, alia verò demiſſiora linea horizontali, lineæ omnes planorum, ac linea horizontalis, ſunt invicem parallelæ; adeoque ex linea, quæ omnes eas normaliter ſecet, ſtatim dignoſci poteſt, in qua proportione, ſingula plana ſint altiora, vel profundiora linea horizontali. Velim quoque obſerves, latitudinem columnæ mediæ, minorem eſſe latitudine columnarum lateralium; & diſcrimen inter hujuſmodi latitudines eò eſt majus, quo punctum diſtantiæ fuerit vicinius puncto oculi. Quæ dicta ſunt de columnis, intelligere oportet de baſibus, & de optica delineatione ambarum. Nihilominus, ſi figura ex debito puncto inſpiciatur, columnæ pictæ habebunt eandem apparentiam, quam haberent columnæ ſolidæ, invicem æquales.

The Eighteenth Figure.

The IONICK *Baſe in Perſpective.*

Y the Multitude and Variety of Figures in this Work, the Reader will be inſtructed in delineating things, however different in Size or Situation. In this Figure, the Line on which the two Columns reſt, is both the Horizontal and the Ground-line; that on which the three Columns are plac'd, is ſo much higher than the Horizontal Line. And as, where the Ground-line is beneath the Horizontal, the Lines drawn to the Points of Sight and Diſtance tend upwards; ſo, where the ſame is above the Horizontal, the Lines to the Points of Sight and Diſtance tend downwards. If in the ſame Picture there are different Grounds, ſome higher, others lower than the Horizontal Line; yet are all thoſe Ground-lines, and the Horizontal, parallel one to another; and therefore, by a Line cutting them all perpendicularly, you preſently know in what proportion each Plan or Ground is higher or lower than the Horizontal. I would have you obſerve, That the Breadth of the middle Column is, by the Perſpective, render'd leſs than that of the Side-Columns; and that this Difference is the greater, as the Point of Diſtance approaches nearer to the Point of Sight. What has been ſaid of the Columns, is alſo to be underſtood of the Baſes, and the Projections of all their Parts in Perſpective: Nevertheleſs, if the Picture be view'd from its due Place, the Columns will have the ſame Effect, as if ſolid; and all appear equal one to the other.

Figura Decimanona.

Optica imminutio baſis CORINTHIÆ.

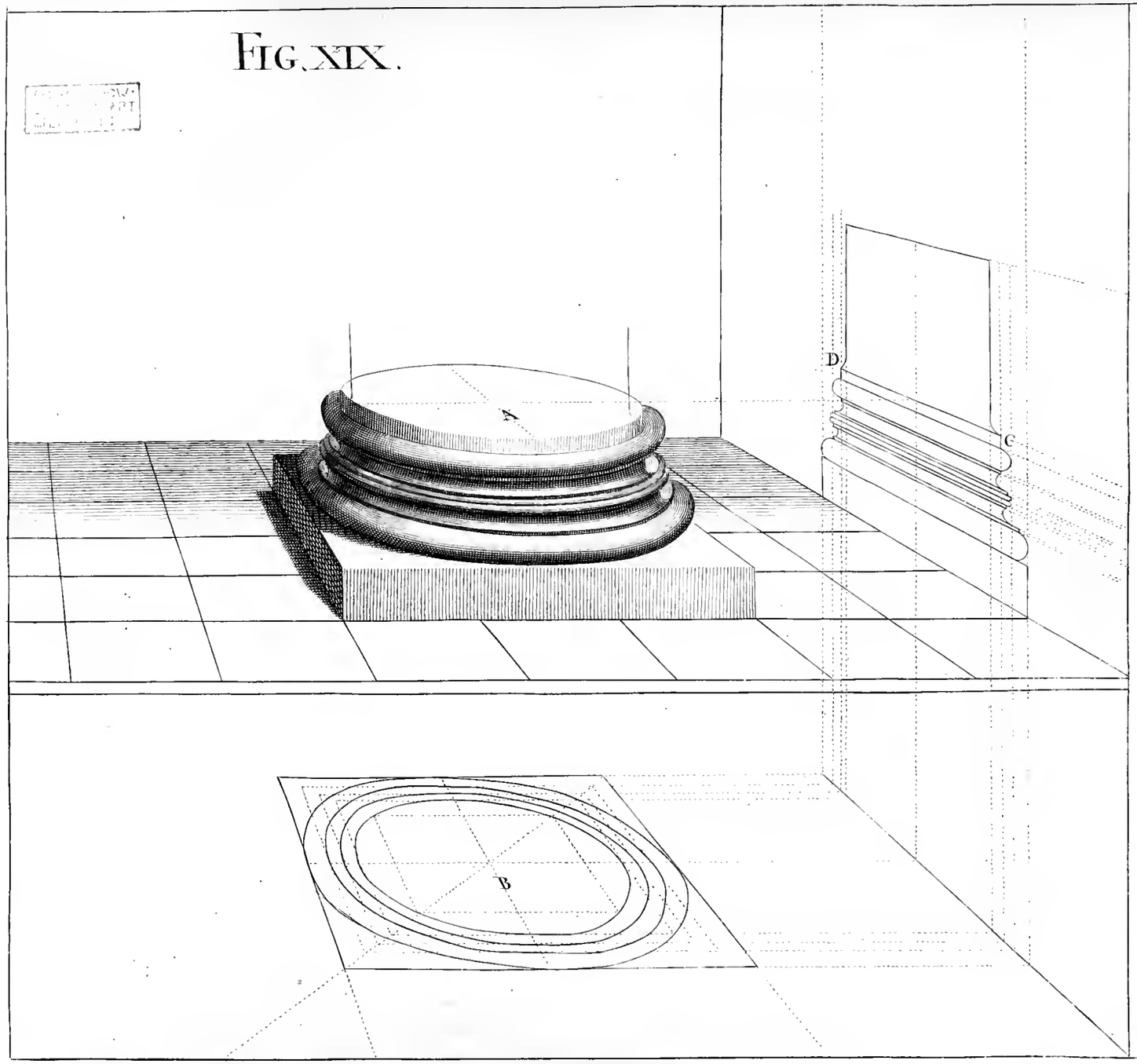
ÆC baſis juxta regulas traditas opticè contracta eſt. Porrò altitudo ſuperficiei A *eſt eadem cum latitudine lineæ viſualis* C D ; *latitudo crucis* A *eſt eadem cum latitudine crucis ſecundi circuli veſtigii* B, *incipiendo à minimo omnium. Duæ lineæ normaliter infixæ baſi, oſtendunt maximam latitudinem quam habere debet columna ſupra imum ſcapum. Maxima latitudo tori ſuperioris & utriuſque aſtragali, eſt eadem cum maxima latitudine tertii circuli. Maxima latitudo tori inferioris eſt eadem cum maxima latitudine ultimi circuli.*

The Nineteenth Figure.

The CORINTHIAN *Baſe in Perſpective.*

HIS Baſe is put in Perſpective by the Rules before laid down. The Height of the Superficies A is the ſame with that of the viſual Line C D ; the Breadth of the Croſs A is the ſame with that of the ſecond Circle of the Plan B, beginning with the leaſt. The two Lines that ſtand perpendicularly on the Surface of the Baſe, ſhew the greateſt Breadth of the Column's Shaft above the Fillet. The Extent of the upper *Torus* and the two Aſtragals, is the ſame with that of the third Circle ; and the Extent of the lower *Torus* is the ſame with that of the outward Circle.

Fig. XIX.



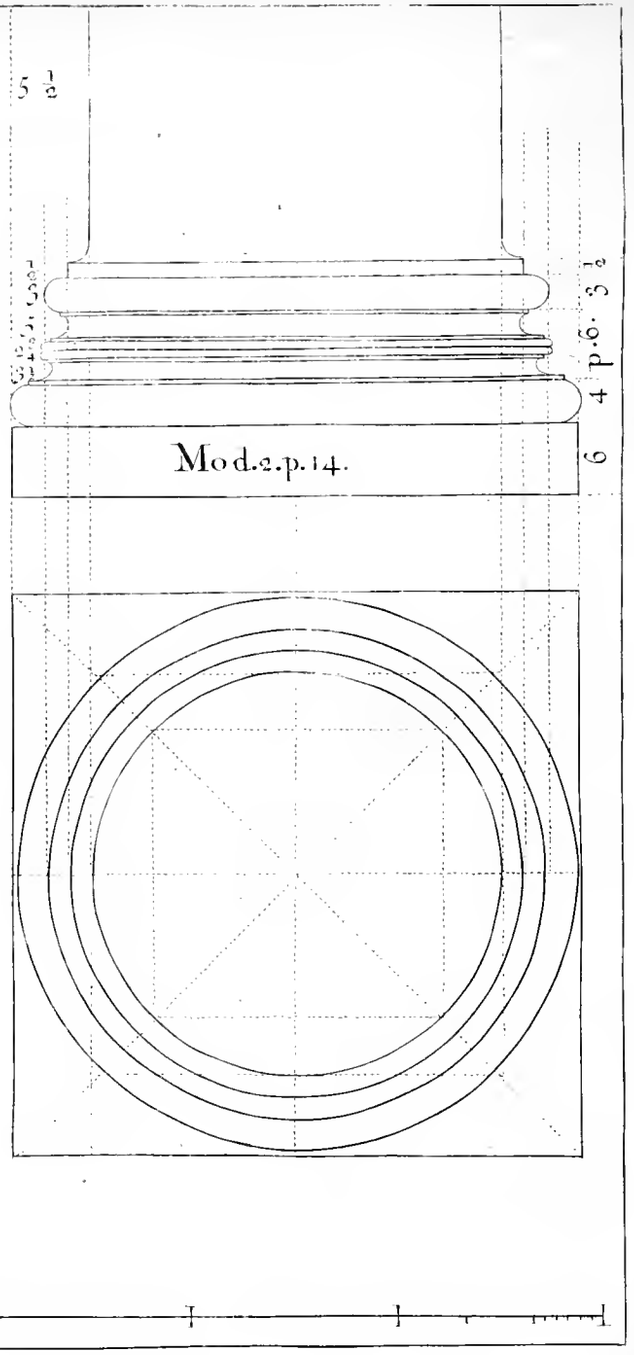
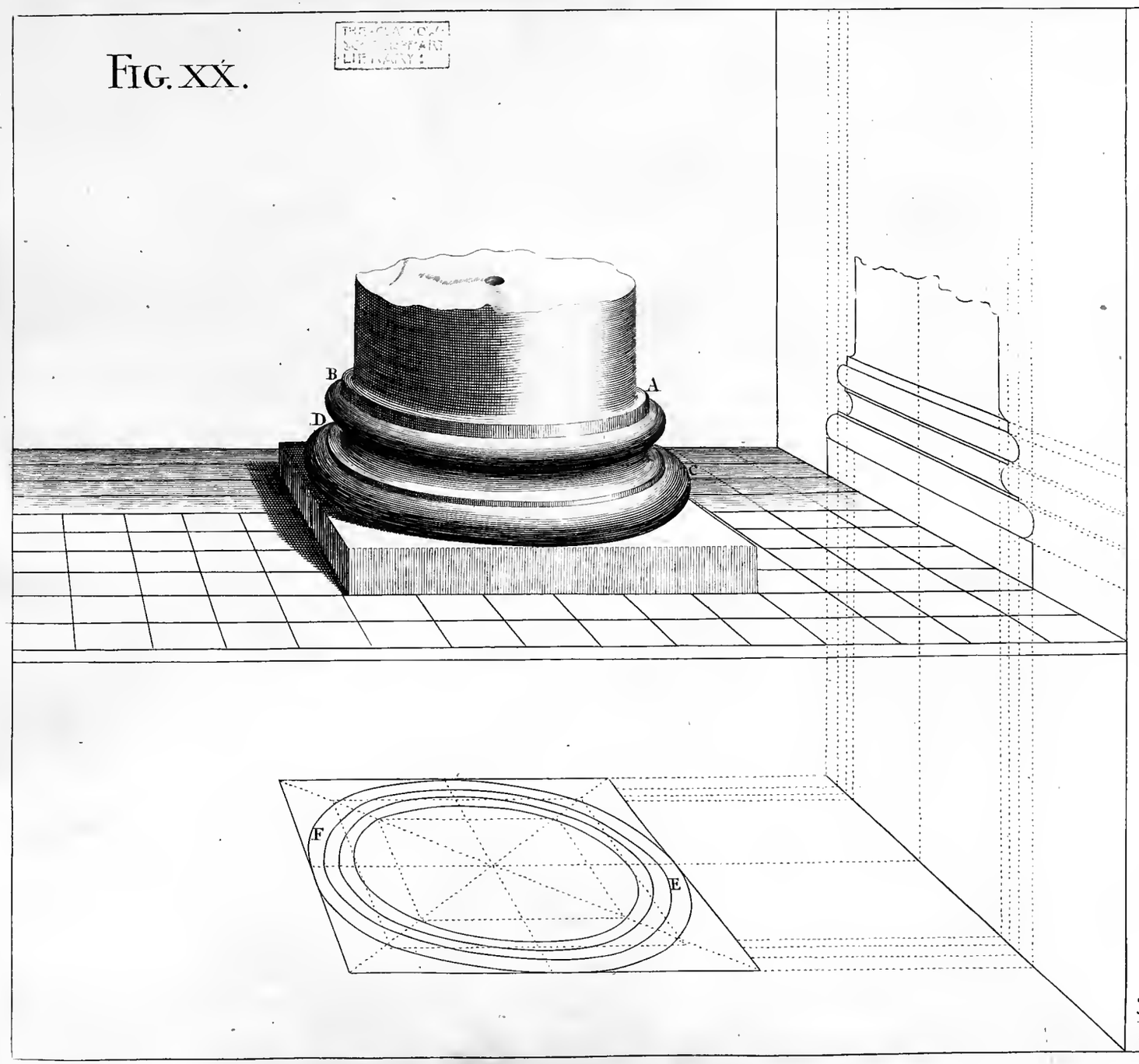


Fig. XX.

PRINCETON
SCHOOL OF ART
LIBRARY



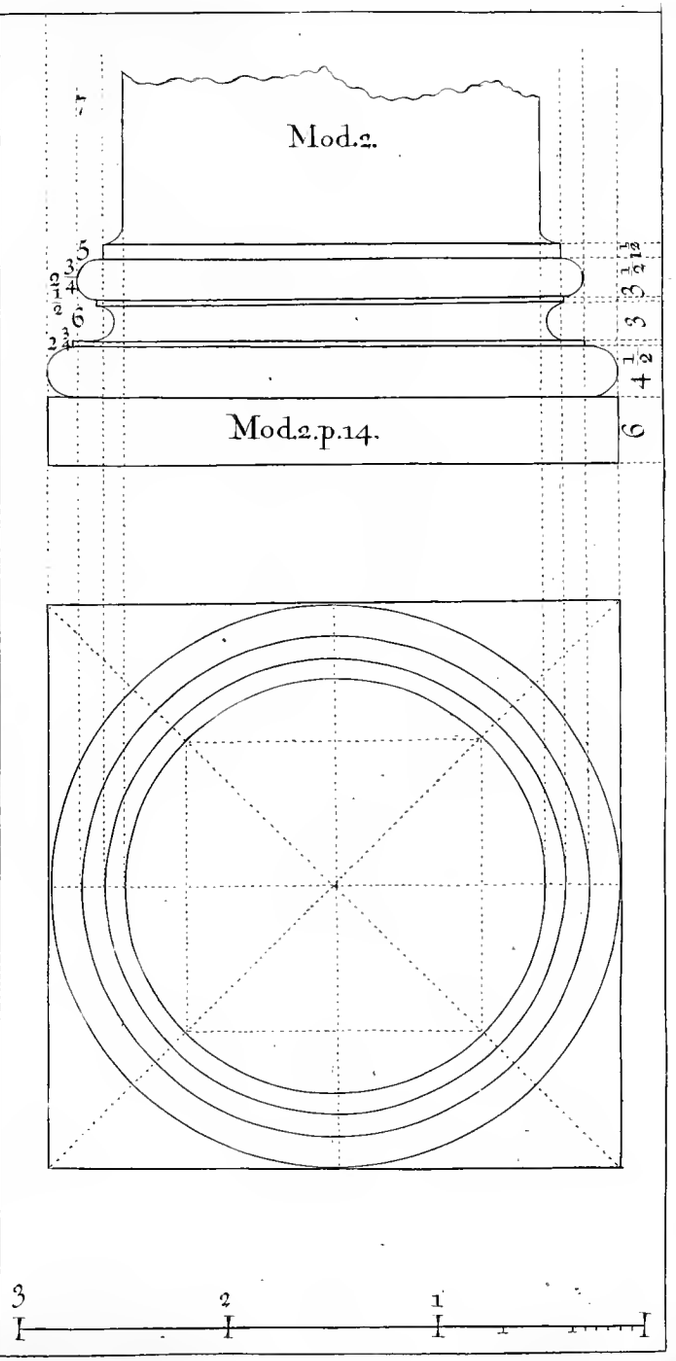


Figura Vigeſima.

Baſis ACTICURGA optice imminuta.

ASIS Acticurga Pictoribus præ reliquis familiaris eſt, quia cum omnibus ferè Ordinibus egregiè conſentit. Porrò ex punctis E *&* F *maximæ utrinque latitudinis extimi circuli veſtigii, habetur maxima latitudo tori inferioris* CD. *Ac cætera quæ ſpectant ad ipſum & ad torum* AB, *petenda ſunt ex dictis de baſi Etruſca.*

The Twentieth Figure.

The ATTICK *Baſe in Perſpective.*

THE *Attick* Baſe is more frequently made uſe of by Painters, than any other; becauſe it ſuits well with moſt of the Orders. The Points E and F, the greateſt Breadth of the outward Circle of the Perſpective-Plan, give the greateſt Breadth of the lower *Torus* CD. And whatever elſe relates either to this or the upper *Torus* AB, is to be ſought in the ſame Manner, as has been ſhewn in the *Tuſcan* Baſe.

FIG. Vigeſimaprima.

Optica imminutio capitelli ETRUSCI.

ADEM cum reliquis formâ, eâdemque methodo capitella delineanda ſunt: quum habeant ipſa quoque ſuum cimatium quadratum, & ſint rotunda. Linea plani ſolet in iis fieri altior lineâ horizontali: quia quum capitella imponenda ſint columnis homine altioribus, plerumque apparent ſublimiora noſtris oculis.

The Twenty-firſt FIG.

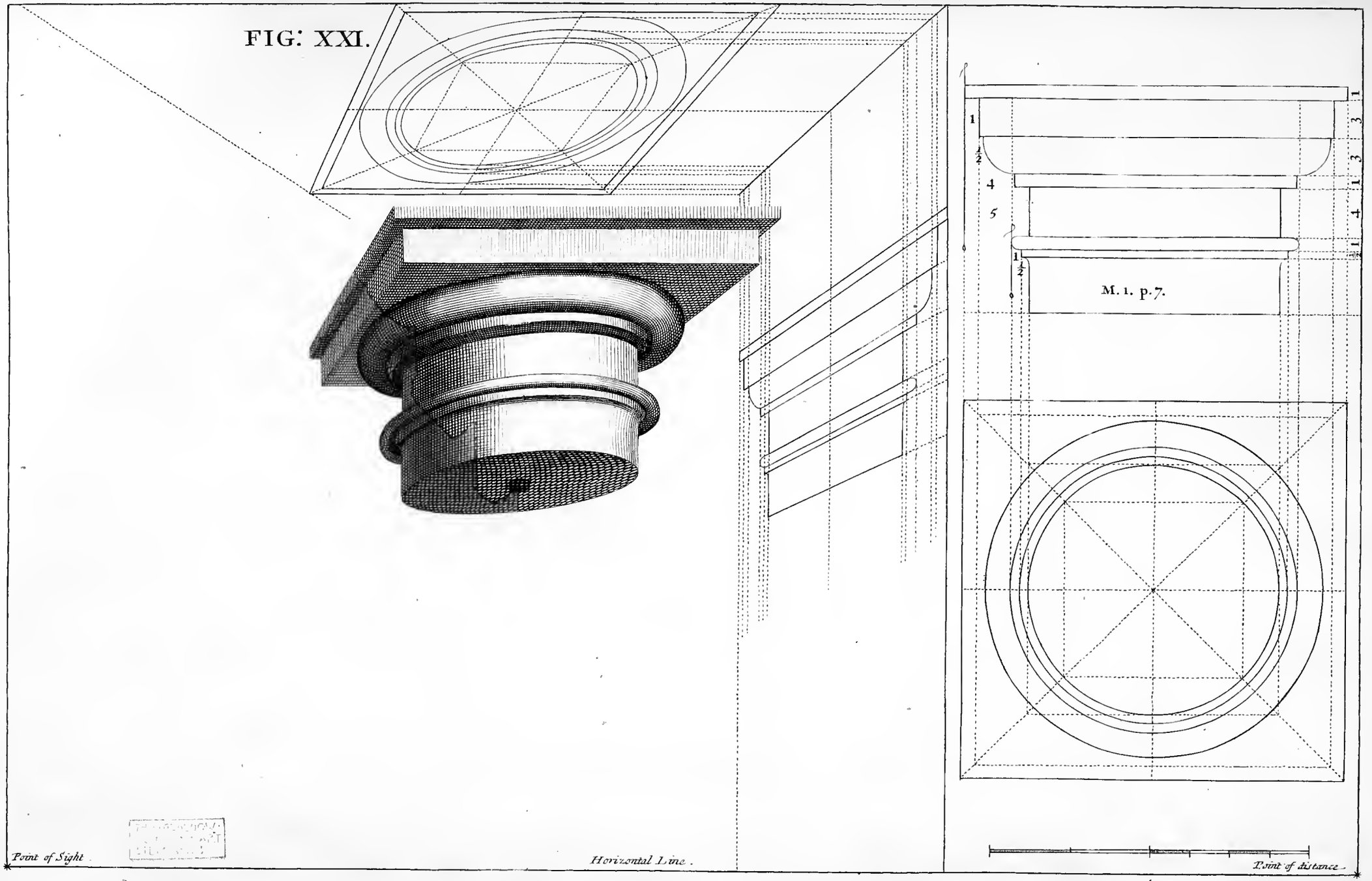
The TUSCAN *Capital in Perſpective.*

THE Manner before deliver'd concerning Baſes, is of the ſame Uſe in delineating Capitals; foraſmuch as theſe alſo have their ſquare *Abacus*, and their round Members. The Ground-line in Capitals is uſually plac'd above the Horizon; becauſe, when they are ſet upon Columns which exceed a Man's Height, they are generally repreſented above the Eye.

PLATE, I. To Face Page 42.

THE GLASGOW ARCHITECTURAL ASSOCIATION

FIG: XXI.


1
1/2
4
5
1/2
M. 1. p. 7.
1
3
1/2
3
1
4
1/2
Point of Sight
Horizontal Line
Point of distance

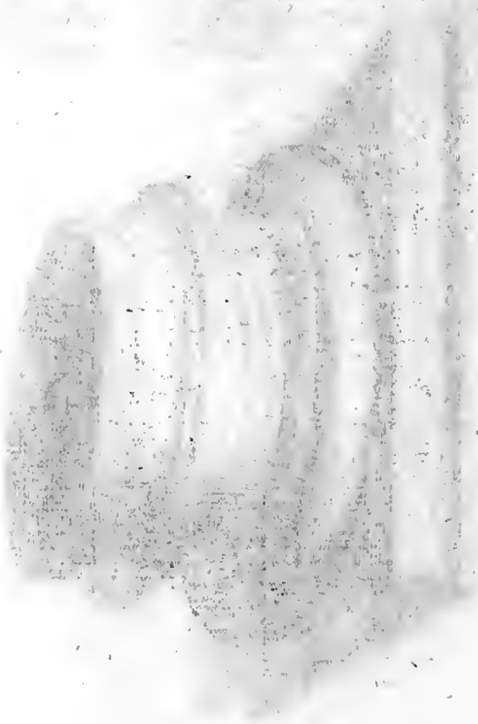
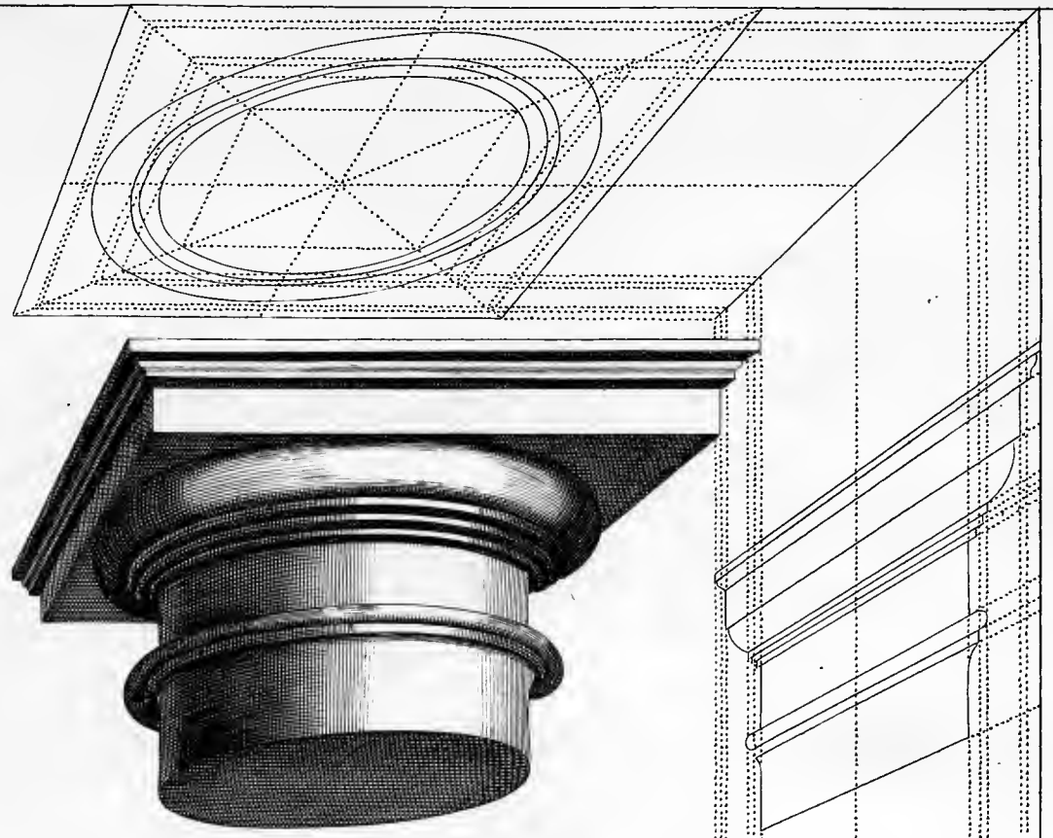
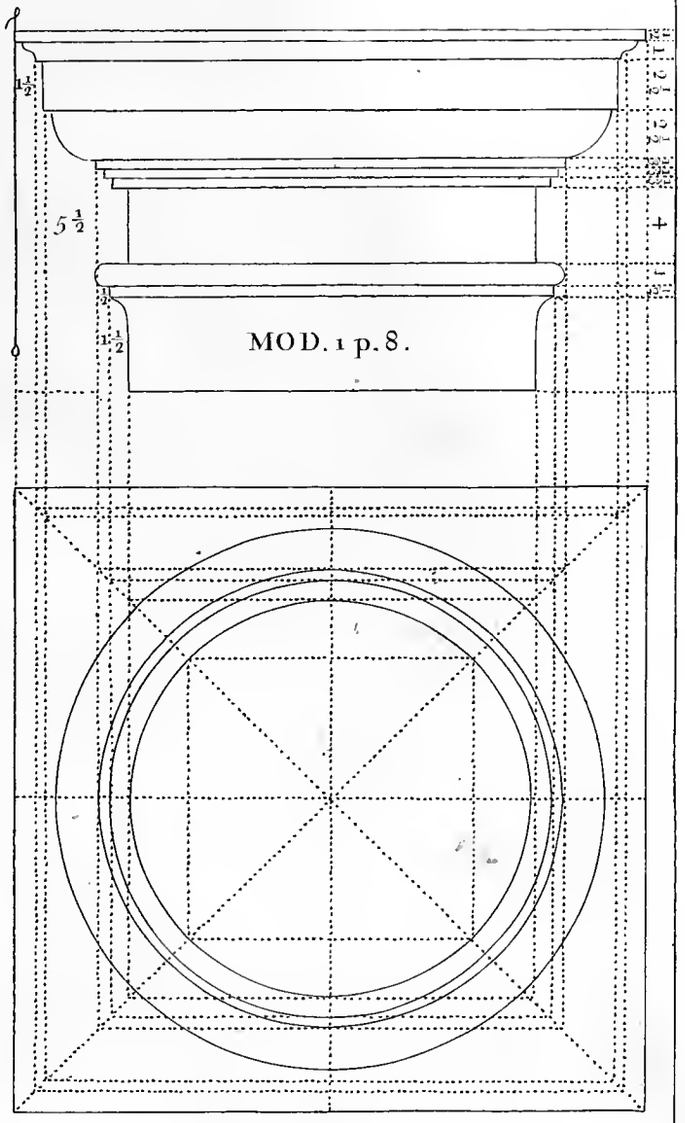


FIG. XXII.





THE GLASGOW SCHOOL OF ART LIBRARY

Figura Vigeſimaſecunda.

Optica projectio capitelli DORICI.

APITELLUM hoc pluribus membris conſtat adeóque operoſius eſt quam præcedens. Nihilominus accurata delineatio veſtigii geometrici omnes difficultates complanabit.

The Twenty-ſecond Fig.

The Projection of a DORICK *Capital in Perſpective.*

HIS Capital conſiſting of more Members than the foregoing, will be more troubleſom to put in Perſpective; but an accurate Delineation of the Geometrical Plan will certainly remove many ſeeming Difficulties.

Figura Vigeſimatertia.

Deformatio capitelli IONICI.

CAPITELLUM Ionicum poſcit duas elevationes geometricas diſtinctas, alteram faciei, alteram lateris; ex iiſque conflatur veſtigium geometricum A, *quod opticè contrahitur, tranſlatis in* B *punctis latitudinis* C, *& in* E *punctis longitudinis* D, *more conſueto: ut ex punctis* B *latitudinis, lineæ tendant ad punctum oculi; ex punctis verò* E *longitudinis, lineæ tendant ad punctum diſtantiæ.*

Ex veſtigio capitelli opticè contracto eruenda eſt elevatio longitudinis ut in figura. Ex utriſque verò juxta morem fiet capitellum nitidum, acceptis latitudinibus ex veſtigio, altitudinibus ex elevatione longitudinis. Hæc quoque dabit maximam latitudinem ſingularum volutarum.

Modum delineandi capitellum Ionicum, in quo helices volutarum obliquentur, dabimus infra figurâ trigeſimâ.

The Twenty-Third Fig.

The IONICK *Capital in Perſpective.*

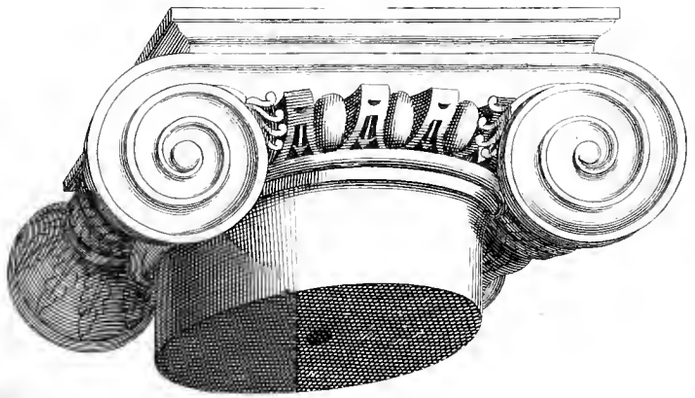
THE *Ionick* Capital requires two diſtinct geometrical Elevations, one of the Front, the other of the Side; from both which is found the geometrical Plan A, which is put in Perſpective, by transferring into B the Points of Breadth C, and into E the Points of Length D, after the uſual Manner; that from the Points of Breadth B, Lines may be drawn towards the Point of Sight; and from the Point of Length E, towards the Point of Diſtance.

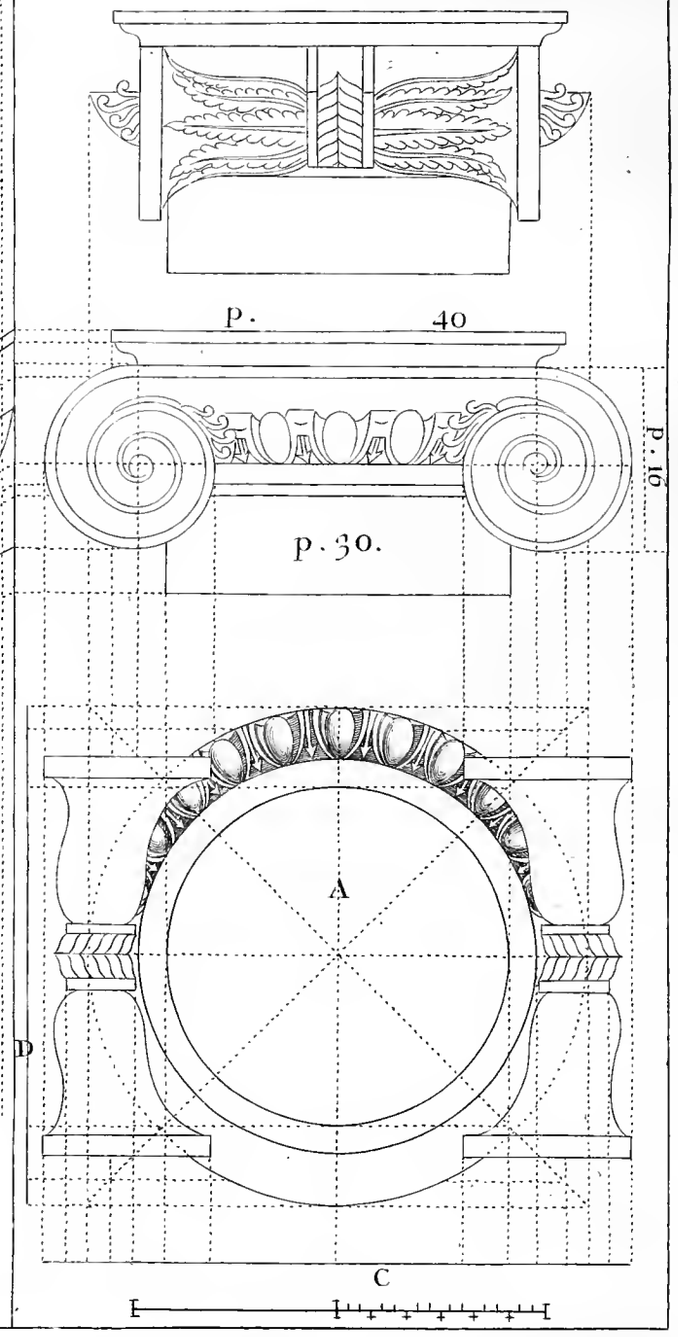
From the Plan of the Capital in Perſpective, is to be drawn the Upright of the Length, as in the Figure: and from both, as uſual, the finiſh'd Capital is wrought, by taking the Breadths from the Plan, and the Heights from the Elevation; this giving the utmoſt Height, and that the utmoſt Breadth of each of the Volutes.

The Manner of deſcribing the *Ionick* Capital, whoſe Volutes lie obliquely, we ſhall hereafter treat of in the Thirtieth Figure.

E B

FIG. XXIII.





THE GLASGOW SCHOOL OF ART LIBRARY

FIG: XXIV

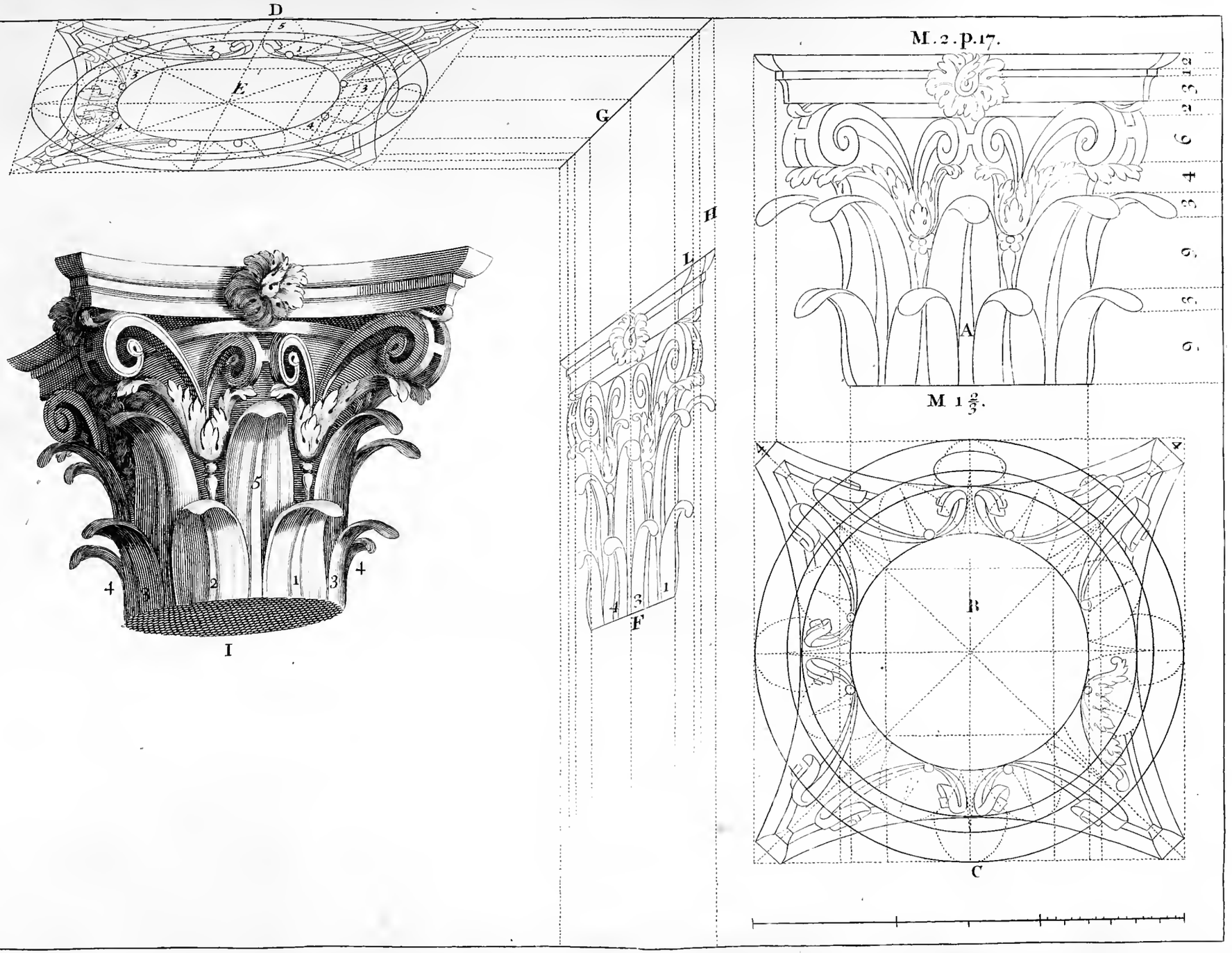


Figura Vigeſimaquarta.

Optica projectio capitelli CORINTHII.

APITELLUM Corinthium abſolvere non poteris, niſi elevatione geometrica ejuſque veſtigio exactiſſimè delineatis juxta regulas Barozzii.

Ad formandum ex veſtigio B *veſtigium* E, *rectis occultis fient quadrata neceſſario ad contractionem opticam quatuor vel trium ſaltem circulorum; tranſlatis in lineam* D *diviſionibus lineæ* C, *& aliis more conſueto. Contrahentur deinde lineis occultis veſtigia foliorum, & abſolventur cætera quæ poſita ſunt in veſtigio* E.

Ut fiat optica elevatio longitudinis F, *in lineam perpendicularem* H *transferentur ex elevatione* A *omnes ejus diviſiones. Complebitur autem per lineas rectas, quæ ex punctis diviſionum ducantur ad punctum oculi, ac per rectas ex circulorum ſummitate ac profunditate, quæ rectæ ſint parallelæ ad lineam* D, *ac perveniant ad viſualem* G; *indeque deſcendant, ac ſint parallelæ ad lineam perpendicularem* H.

Capitellum nitidum exordieris ab infimo circulo I, *oſtendente ambitum columnæ. Succedent folia* 1, 2, *quorum latitudines accipientur ex veſtigio* E *per circinum, poſitâ unâ ejus cuſpide in linea* H; *altitudines verò accipientur ex elevatione* F, *poſita una cuſpide circini in linea* D. *Idipſum dico tum de foliis* 3, 3, 4, 4, *tum de folio* 5, *ac de aliis, & demum de cymatio. Deſcenſus verò lineæ curvæ ipſius cymatii incipiet ex acie* L.

The Twenty-fourth Fig.

The CORINTHIAN *Capital in Perſpective.*

HERE is no completing the *Corinthian* Capital, unleſs you moſt accurately deſcribe its Geometrical Elevation and Plan, according to the Rules of *Vignola*.

Being to form the Plan E from the Plan B, you muſt, with occult Lines, make the Squares neceſſary for bringing four, or at leaſt three of the Circles into Perſpective; transferring into the Line D the Diviſions of the Line C, and the reſt as uſual. Then, with other occult Lines, contract the Plans of the Leaves, and finiſh what's farther requiſite in the Plan E.

To make the Optick Elevation of the Length F, you muſt transfer into the Perpendicular H all the Diviſions of the Elevation A; and complete the ſame by Lines drawn toward the Point of Sight, till they meet their reſpective Perpendiculars; which, proceeding from all parts of the Circles parallel to the Line D, interſect the Viſual G: from whence they deſcend, Parallels to the Perpendicular H.

In working the clean Capital, you ſhould begin with the loweſt Circle I, which denotes the Compaſs of the Column. Then make the Leaves 1, 2, by taking their Breadths from the Plan E, with the Compaſſes, and keeping one Point of them upon the Line H; and their Heights from the Elevation F, keeping one Point on the Line D. The ſame muſt be done, as well by the Leaves 3, 3, 4, 4, as by the Leaf 5, and the others; and laſt of all, by the *Abacus* alſo; the Sinking of the Horns whereof, anſwers that of the viſual Line L.

Figura Vigeſimaquinta.

Optica deſcriptio capitelli COMPOSITI.

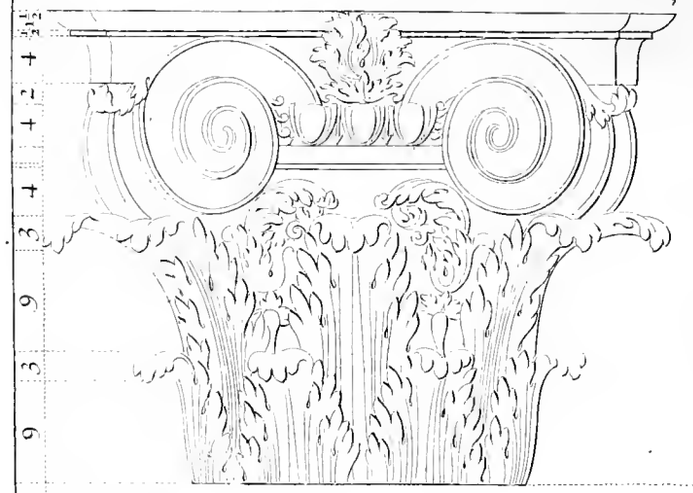
X iis quæ diximus de capitello Corinthio, didiceris modum faciendi capitellum Compoſitum. Velim autem tibi perſuadeas, cum lectione harum regularum quæ ſunt magiſtri inanimes, circini uſum perpetuò conjungi oportere. Hic enim vivi magiſtri defectum unicè ſupplere poteſt.

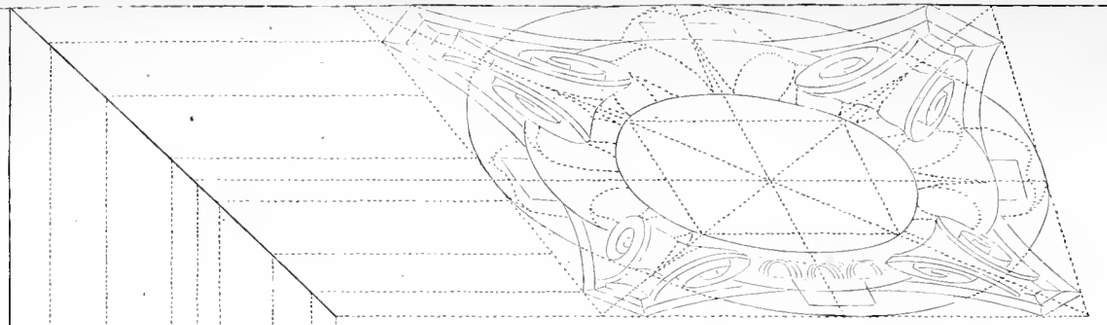
The Twenty-fifth Figure.

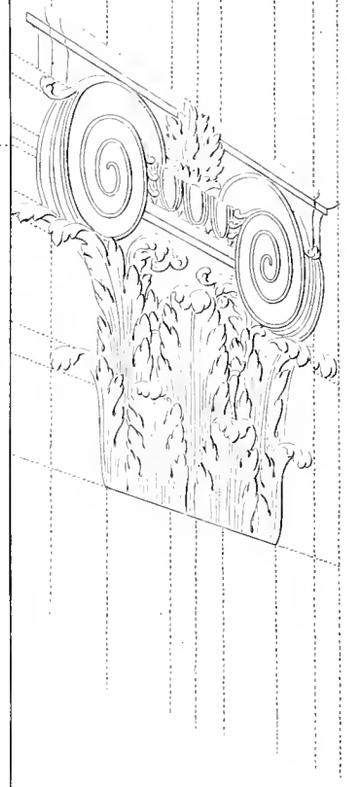
The COMPOSITE *Capital in Perſpective.*

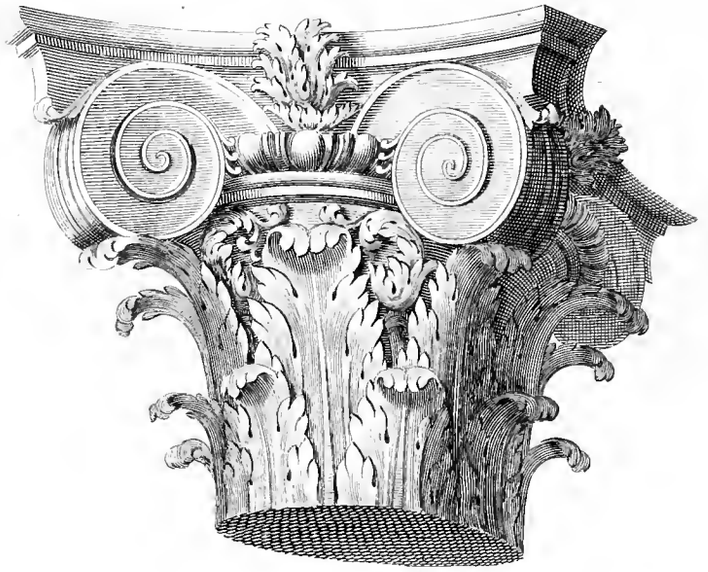
ROM what has been ſaid of the *Corinthian* Capital, may be learnt the Manner of putting the *Compoſite* alſo into Perſpective. I wiſh I could prevail with you, that to the Reading of the Rules, which in themſelves are but lifeleſs Maſters, you would conſtantly add a diligent Practice of the Figures by the Compaſſes; this being the only way to ſupply the Want of a living Maſter.

FIG: XXV.

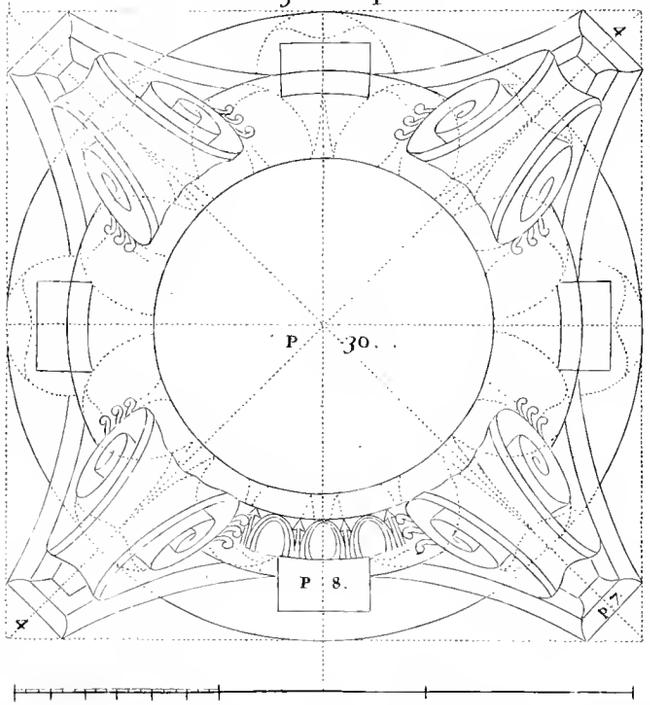


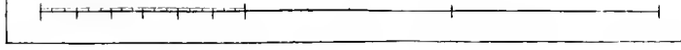






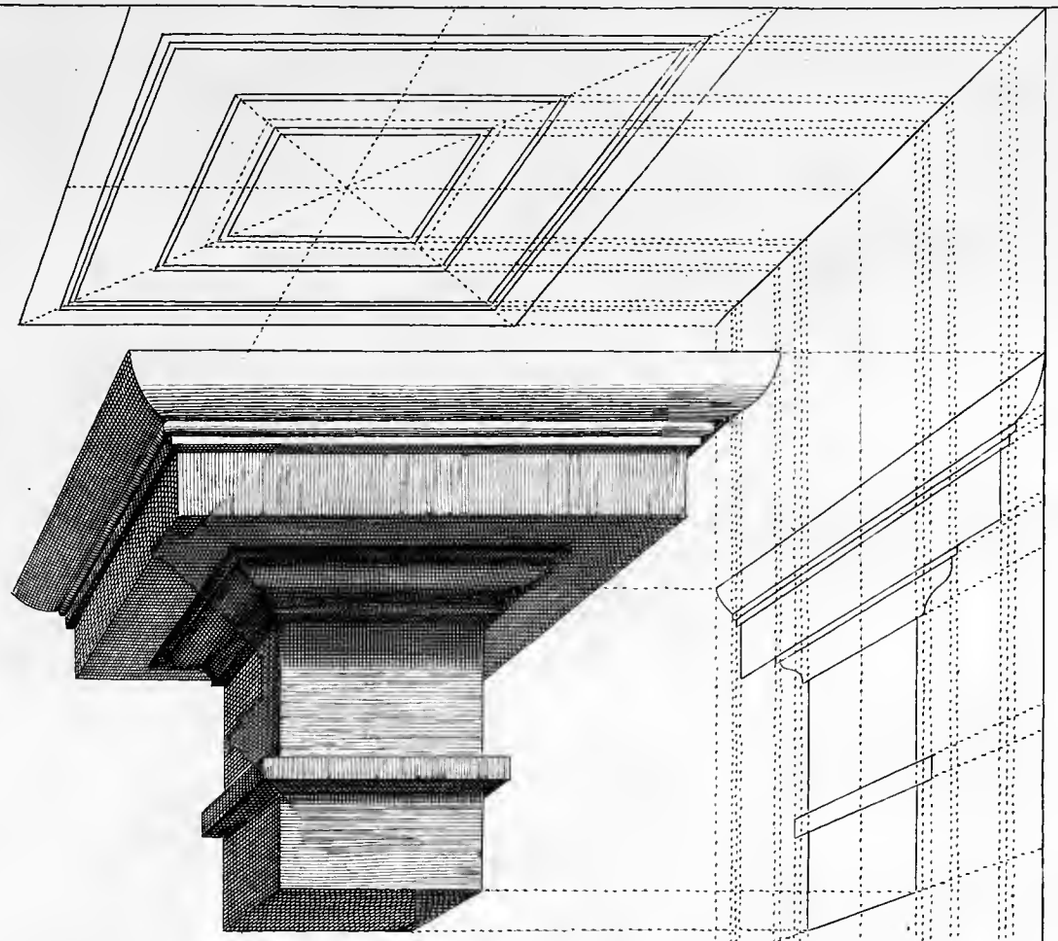
M. 3. P. 2.

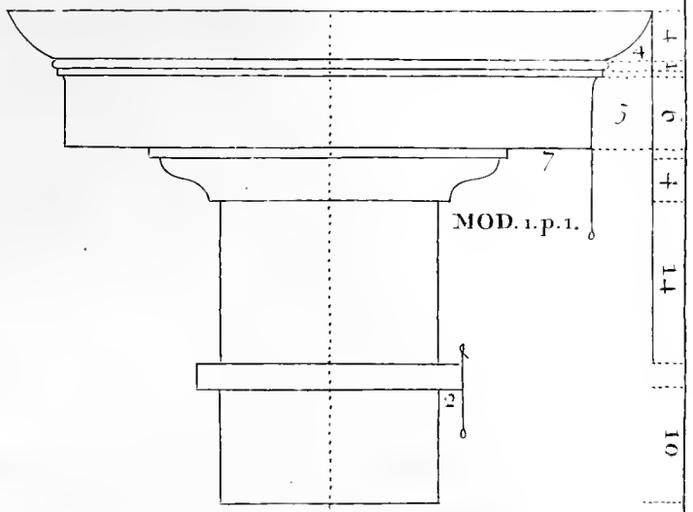


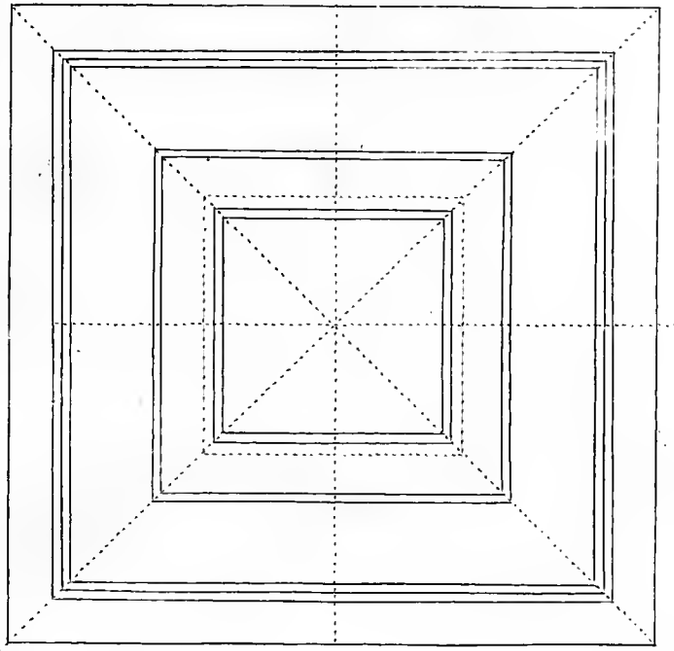


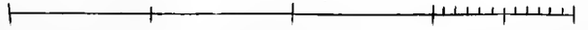
THE GLASGOW SCHOOL OF ART LIBRARY

FIG. XXVI.









THE CLEVELAND SCHOOL OF ART LIBRARY

Figura Vigeſimaſexta.

Deformatio coronicis ETRUSCÆ.

OST capitella ſequuntur coronices, quæ, utpote quadratæ, minimam habent arduitatem. Inter coronices verò, nulla eſt Etruſcâ ſimplicior ac facilior. Ex elevatione geometrica, more ſolito, formatur veſtigium geometricum; ex eoque opticè contracto eruitur ſimilis elevatio longitudinis. Demùm ex elevatione & veſtigio componitur coronix nitida. Memineris autem duas eſſe lineas, quæ hinc inde terminant latitudinem elevationis opticæ. Linea quæ altior eſt, dat altitudinem anterioris faciei coronicis, alia quæ eſt depreſſior, dat altitudinem faciei poſterioris. Et ita erit in poſterum.

The Twenty-ſixth Fig.

The TUSCAN *Entablature in Perſpective.*

AFTER Capitals we proceed to *Entablatures*, which, becauſe they are ſquare, are leſs difficult than the former. And of all Entablatures, that of the *Tuſcan* Order is the moſt ſimple and eaſy to be put in execution. From the Geometrical Upright is drawn, as uſual, the Geometrical Plan; from the Plan put in Perſpective is deſcrib'd the Optick Elevation of the Length; and from both the latter is wrought the clean Entablature requir'd. You may obſerve, here are two Lines that terminate the Breadth of the Perſpective on one ſide and the other. The Line which proceeds from the higher Corner of the Viſual, gives the Height of the moſt advanc'd Part; that from the lower determines the Height of the Back-part. And ſo for the future.

Figura Vigeſimaſeptima.

Optica delineatio coronicis DORICÆ.

45

N facienda coronice Dorica, quæ majorem operam poſcit, ob denticulos & triglyphos; communis regula ſervanda eſt. Si autem libeat coronicem nitidam deſcribere in papyro ſeparatâ ab ejus præparationibus, id profectò licet, tum in hoc, tum in quocunque alio ſchemate.

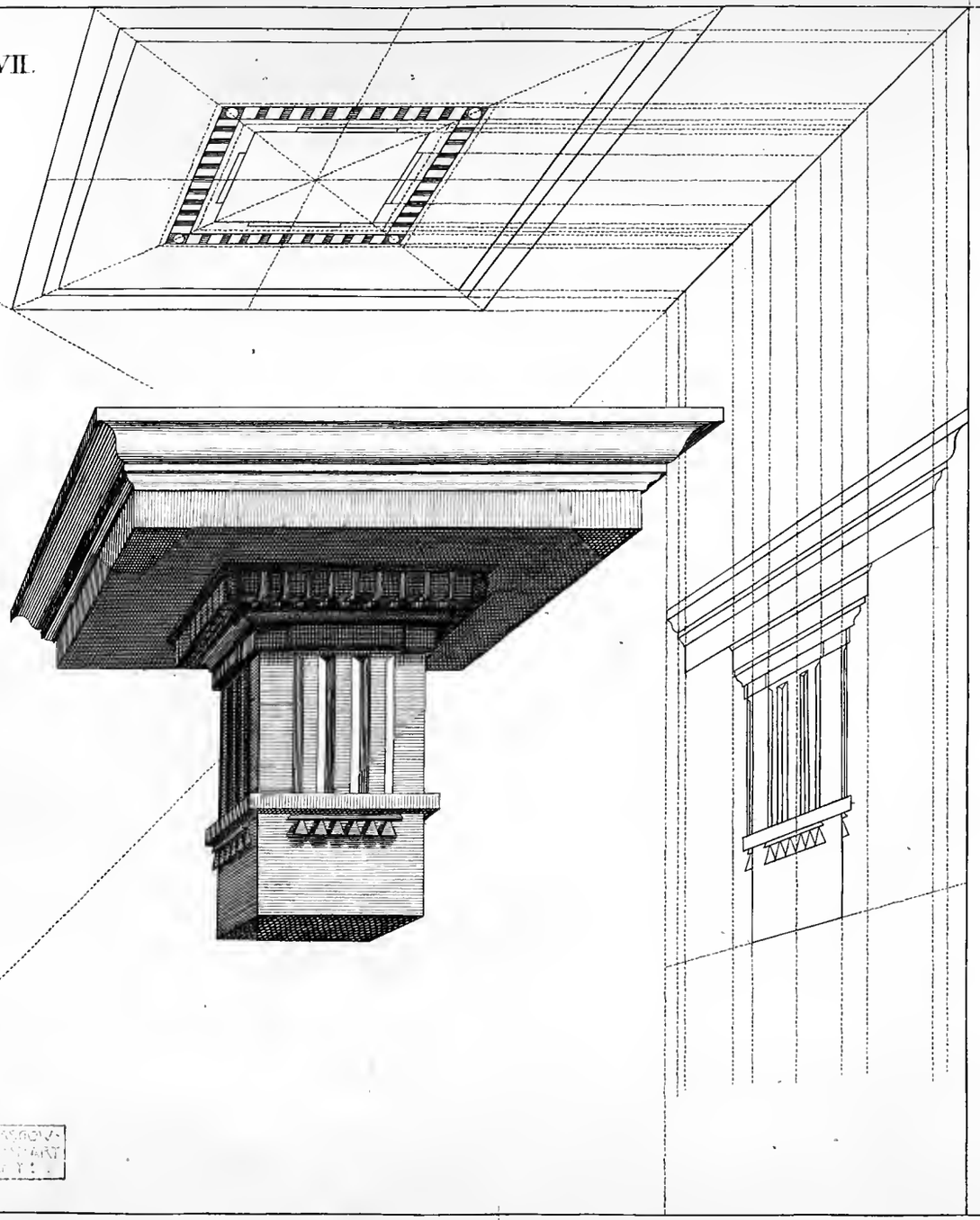
The Twenty-ſeventh Fig.

The DORICK *Entablature in Perſpective.*

30

N making the *Dorick* Entablature, which has ſomething more Work in it than the former, on account of its Dentels and Triglyphs; the common Rule is to be obſerv'd. And if you would delineate the finiſh'd Entablature in a Paper diſtinct from that of its Preparations, you are at liberty ſo to do, either in this or any other Figure.

FIG. XXVII.



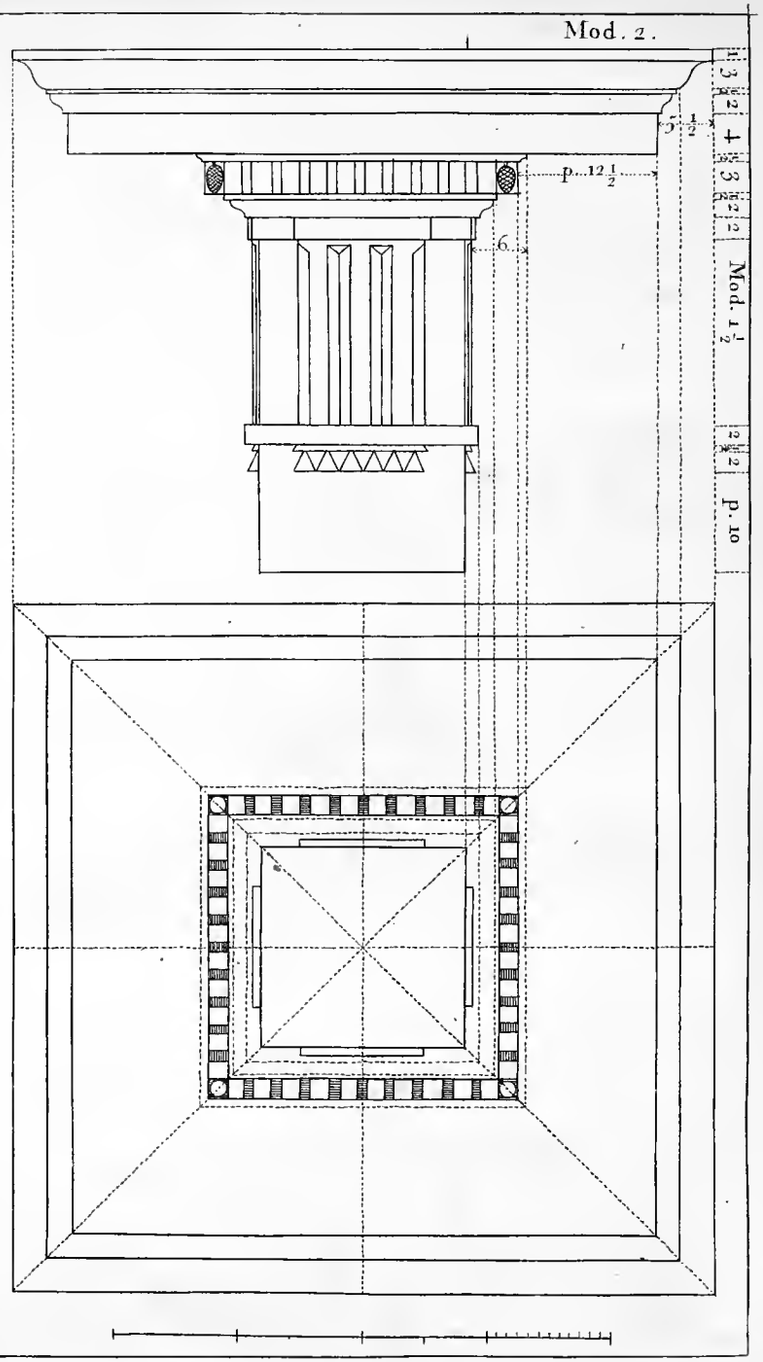


Fig. XXVIII.

THE GLASGOW SCHOOL OF ART LIBRARY

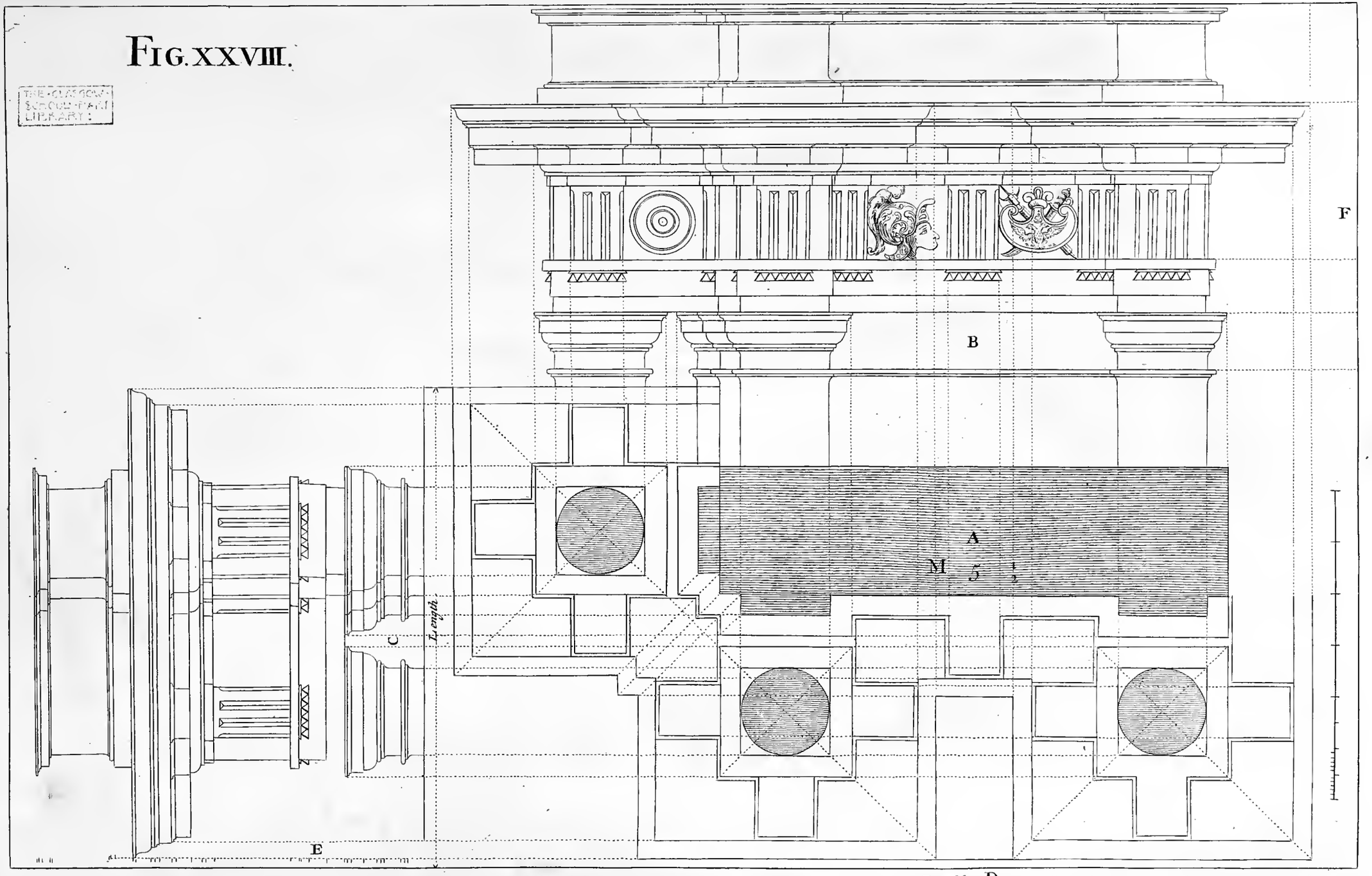


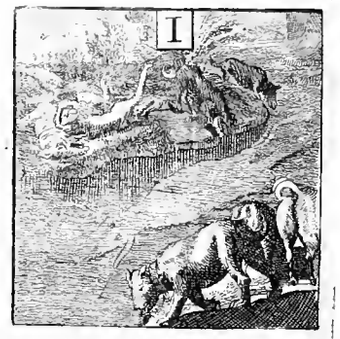
Figura Vigeſimaoctava.

Præparatio figuræ ſequentis.

IN Figura vigeſimaoctava, quæ continet veſtigium & elevationes geometricas figuræ vigeſimænonæ, oportuit latus C *delineare ſeorſim à facie* B; *quia facies exhibet latitudinem ædificii, latus verò exhibet longitudinem; atque una non eſt alteri æqualis. In veſtigio geometrico ſolidus paries eſt* A: *circuli referunt ſummum ſcapum columnarum. Cætera dant projecturas coronicis, cum ſuis mutulis.*

The Twenty-eighth Fig.

Preparatory to the following Figure.



IN this Twenty-eighth Figure, which contains the Plan and Geometrical Elevations of the Twenty-ninth Figure, it was requiſite to delineate the Side C ſeparately from the Front B; becauſe the Front, which ſignifies the Breadth of the Building, and the Side, which ſhews its Length, are not equal one to the other. In the Geometrical Plan the ſolid Wall is A; the Circles expreſs the Nakeds of the Pillars Shafts at top. The reſt is the Projecture of the Cornice, with its Mutules.

Figura Vigeſimanona.

Optica projectio ædificii Dorici.

ABES in hac figura vigeſimanona, opticam delineationem veſtigii, & unius ex elevationibus figuræ vigeſimæoctavæ; nimirum, elevationis longitudinis; ex quibus eruitur imago nitida ædificii Ordinis Dorici, cum ſummitatibus & capitellis trium columnarum; ejuſque epiſtylium, zophorus, & corona.

BO *eſt linea horozontis;* AC *eſt linea* 29 *plani; in quàm, ex lineis* D *&* C *figuræ vigeſimæoctavæ, transferuntur puncta latitudinis & longitudinis duarum elevationum; prolongando verſus* C *ipſam lineam plani, ut oportet. Operaberis autem, ut diximus figurâ vigeſimatertiâ; nimirum, in puncto* V *deſinet latitudo veſtigii, incipiet longitudo; & ex punctis latitudinis lineæ tendent ad punctum oculi; ex punctis longitudinis lineæ occultæ tendent ad punctum diſtantiæ. Ubi verò hæ lineæ ſecant viſualem* VO, *fient parallelæ ad lineam* AC, *cum cæteris quæ neceſſaria ſunt ad complendam delineationem opticam veſtigii.*

Elevatio C *figuræ vigeſimæoctavæ opticè contrahetur more conſueto, tranſlatis in lineam* AB *diviſionibus lineæ* E *vel* F, *ex quibus fient viſuales ad punctum oculi; ac demiſſis ex linea viſuali* AO *perpendicularibus ad lineam* AC, *ita ut lineæ parallelæ ad lineam plani* AC *continuentur cum aliis lineis parallelis ad lineam* AB.

Hic quoque locum habet obſervatio illa, cujus meminimus figura vigeſimaſexta, de lineis quæ deorſum excurrunt, & hinc inde terminant membra elevationis opticæ. Ex iis autem deſumuntur projecturæ omnes coronicis & capitellorum.

The Twenty-ninth Fig.

A Projection of the Dorick *Order in Perſpective.*

IN this Twenty-ninth Figure, you have in Perſpective the Plan, and one of the Uprights of the Twenty-eighth Figure; namely, that of the Length; from whence is drawn this finiſh'd Piece of the *Dorick* Order, which has the upper Part and Caps of three Pillars, with their Architrave, Freeze, and Cornice.

BO is the Horizontal-Line; AC that of the Plan; into which, from the Lines D and C of the Twenty-eighth Figure, are transferr'd the Points of Breadth and Length of the two Elevations; firſt prolonging the Line itſelf, as much as is needful, thro' C. The Work is then perform'd, as was ſhewn in the Twenty-third Figure; namely, the Diviſions of the Breadth of the Plan end in the Point V, at which thoſe of Length begin. From the firſt, Lines are drawn to the Point of Sight; and from the latter, occult Lines are directed to the Point of Diſtance: and where theſe cut the Viſual VO, Lines are drawn parallel to AC; with thoſe that are farther neceſſary for completing the Plan in Perſpective.

The Elevation C of the Twenty-eighth Figure is put in Perſpective, as uſual, by transferring the Diviſions of the Line E, or F, into that of AB in this Plate; from whence drawing Viſuals to the Point of Sight, they are interſected by Perpendiculars let fall from thoſe Diviſions of AO made by the Parallels to the Ground-line AC, and again continu'd parallel to the Perpendicular AB.

The Obſervation, mention'd in the Twenty-ſixth Figure, is alſo pertinent in this place; That the Lines, which, in the Perſpective-Elevation, tend downward, give the Advance and Receſs of the ſeveral Members of the Work; and from them are taken all the Projectures of the Entablature and Capitals.

FIG. XXIX.

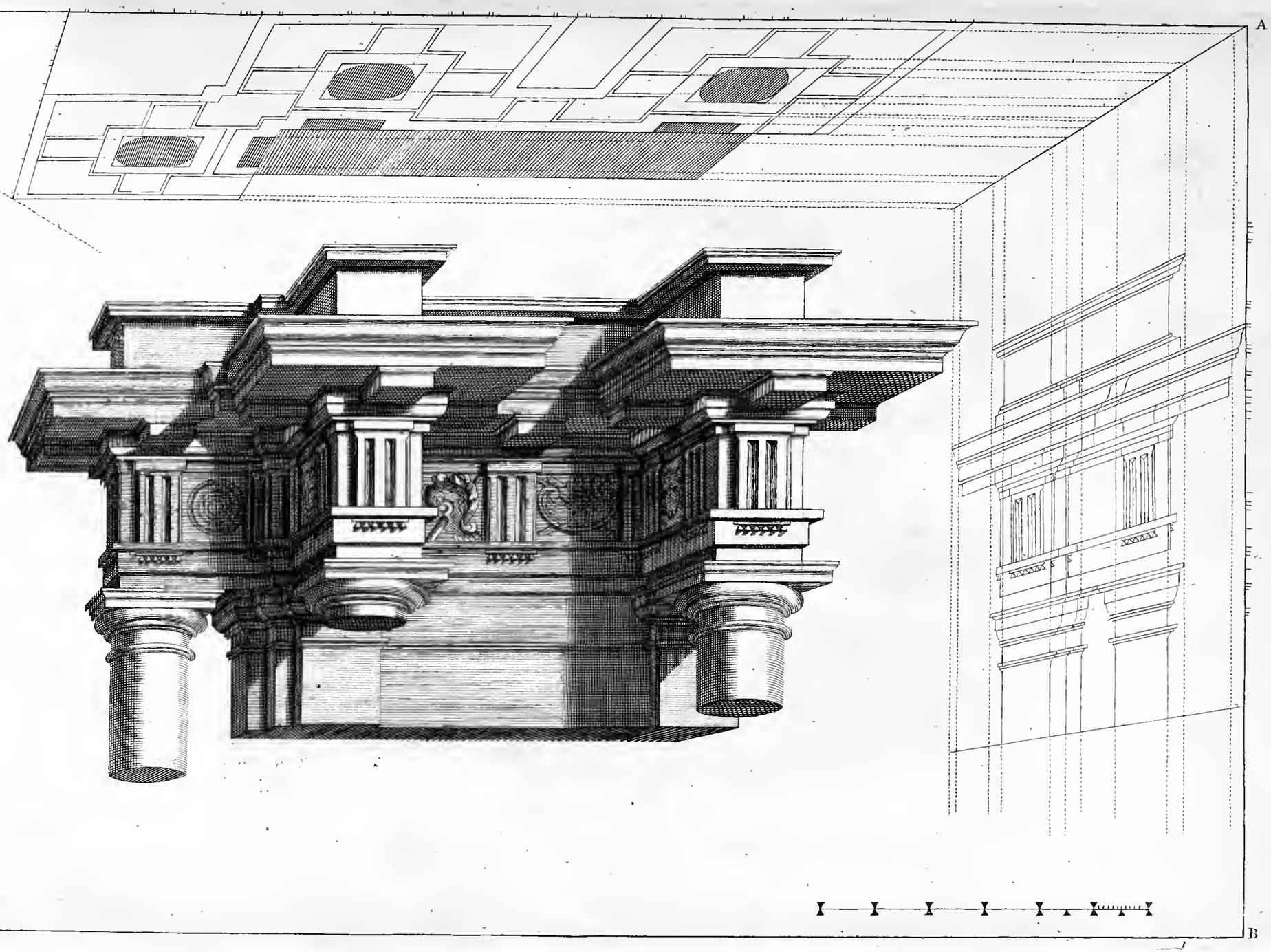
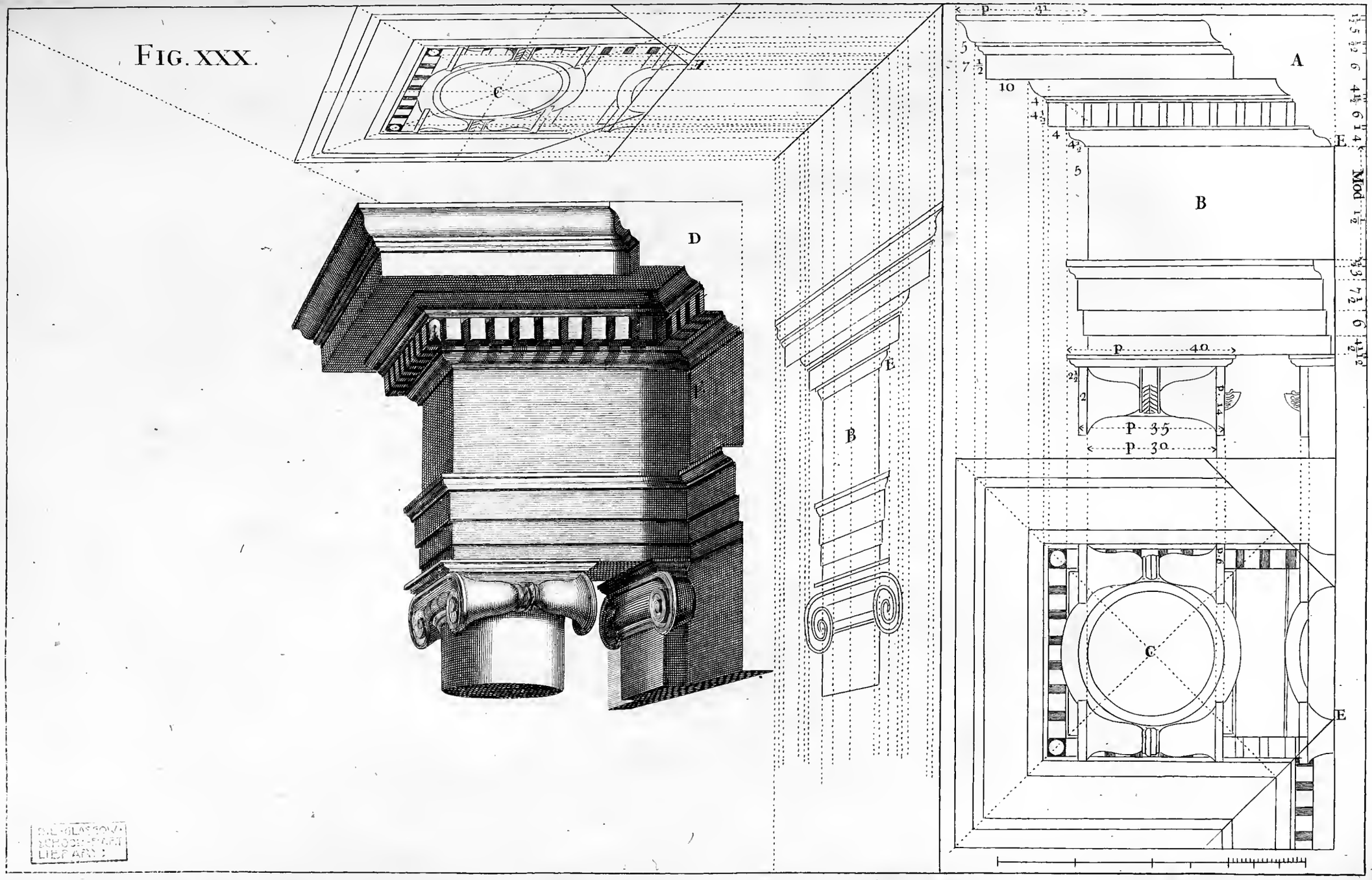


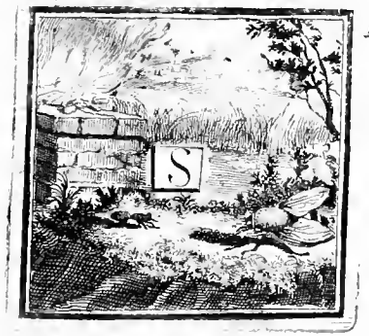
FIG. XXX.



THE GLASGOW SCHOOL OF ART LIBRARY

FIGURA Trigeſima.

Optica projectio ædificii IONICI; ubi de modo jungendi fictum cum vero.



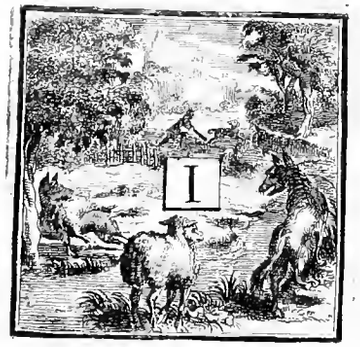
I tibi, Pictor quum ſis, occaſione apparatûs quadraginta horarum, vel ſepulchri Domini, mutare ad tempus libeat formam architecturæ alicujus Eccleſiæ jungendo fictum cum vero, ut mihi ſæpius contigit Mediolani ac Romæ, cum ingenti ſpectatorum delectatione & admiratione; paucis oſtendam tibi modum quem ſervare debeas in operando.

Sectio coronicis veræ, quæ, ut ſuppono, videri debet continua eſſe cum coronice picta in telario, eſt A; elevatio geometrica coronicis, & reliquorum quæ delineanda ſunt, eſt B; *veſtigium geometricum eſt* C. *Porrò, tum veſtigium tum elevatio longitudinis opticè contrahentur more conſueto, ut vides in* C & B: *ex iiſque formabitur in telario coronix nitida cum columna & anta; ipſumque telarium depictum, normaliter coagmentandum erit veræ coronici.*

Ut fiat ea pars longitudinis, quæ coronicem pictam continuare videatur cum vera, & erui non poteſt ex elevatione deformata; oportet ſectionem A *transferre in* D, *ducendo viſuales ex punctis terminativis membrorum ſectionis* D, *uſque dum occurrant lineis latitudinis eorundem membrorum. Quod ſi colores in telarium ſcitè inducantur, angulus in* E, *quamvis merè depictus, videbitur verus; & ex adverſo, anguli quos telarium ipſum depictum facit cum diverſis adeò crepidinibus coronicis veræ, nuſquam apparebunt, præterquam in quadra ſimæ dumtaxat, & unio architecturæ veræ cum picta dignoſci non poterit.*

The Thirtieth Figure.

An IONICK *Work in Perſpective; with the Manner of reconciling the fictitious to the ſolid Architecture.*



IF, being a Painter, you were requir'd, againſt the Solemnity of the Holy-Week, to alter for a while the Architecture of ſome Altar-piece, by joining Painting to the real Work; as I have often done, both at *Rome* and *Milan*, to the great Satisfaction and Surprize of the Beholders: I ſhall briefly ſhew the Method to be obſerv'd in performing the ſame.

The Diſſection of the ſolid Cornice, which I here ſuppoſe ſhall appear continu'd in that painted on the Canvas, is A; the Geometrical Elevation of the Cornice, and other parts to be drawn, is B; the Geometrical Plan is C. The Plan and Elevation of the Length are put in Perſpective after the uſual Manner, in C and B; from thoſe the finiſh'd Cornice, with the Pillar and Pilaſter, are delineated on the Canvas; and the Picture is then conjoin'd, at right Angle to the true Cornice.

For adjuſting the Members ſo, that the painted Cornice may ſeem to be the real one continu'd, (which can't be done by the Perſpective Upright) you muſt transfer the Section A to D; and from the terminating Points of the ſeveral Members thereof, draw viſual Lines, till they meet thoſe of their reſpective Members in the Perſpective. And if the Colours are laid by a skilful Hand, the Angle at E, tho painted only, will appear as real; and on the contrary, the Angles which the Members of the painted Cornice make with the different Projectures of thoſe of the true, will never be diſcern'd, unleſs in the very uppermoſt Fillet; but the Conjunction of the real with the painted Architecture, will be altogether imperceptible.

Figura Trigeſimaprima.

Optica projectio coronicis Corinthiæ, cum capitello & ſummitate columnæ.

IN hoc ſchemate linea plani eſt CIE, *horizontis eſt* DFO; *punctum oculi eſt* O, *diſtantiæ eſt* D. *Elevatio geometrica capitelli Corinthii cum ſua Coronice eſt* A, *quorum diviſiones cernuntur in perpendiculari* CD. *Veſtigium geometricum* B *habet longitudinem æqualem latitudini: opticè autem contrahitur methodo conſueta. Nimirum, tranſlatis diviſionibus latitudinis & longitudinis in lineam plani* CIE; *ex punctis latitudinis fiunt viſuales ad punctum oculi; ex punctis verò longitudinis fiunt occultæ ad punctum diſtantiæ: hoc modo habes quicquid neceſſarium eſt ad contractionem opticam veſtigii. Nam lineæ longitudinum ſunt partes viſualium, ut patet in* GN, HL: *lineæ latitudinum, parallelæ ad lineam plani fiunt ex punctis in quibus lineæ tendentes ad punctum diſtantiæ ſecant viſualem* HO, *ut vides in* NL. *Porro, ſi tantundem prolongaretur horizontalis* DO, *ita ut haberet duo puncta diſtantiæ remota æqualiter ab* O, *medietas diagonalium, quæ ſunt in quadrato majori* GNLH *opticè deformato, & in quadratis ejus minoribus, tendent ad unum punctum diſtantiæ; altera medietas ad aliud punctum diſtantiæ.*

Elevatio longitudinis opticè contrahitur ductis parallelis ad CE, *quæ ubi pervenerint ad viſualem* IO, *continuentur cum aliis parallelis ad* IK. *Præterea, tranſlatis in lineam* IK *diviſionibus lineæ perpendicularis* CD, *ex punctis diviſionum fiunt viſuales ad punctum oculi, ac ducuntur ſingula membra ipſius elevationis, cujus latitudines ſunt partes viſualium, altitudines verò ſunt partes linearum parallelarum ad* IK. *Demùm ex veſtigio & ex elevatione longitudinis, formatur coronix nitida cum capitello. Ut autem faciliùs delineenturmutu li, primùm fient quadratâ formâ, ut in* M; *deinde congruus flexus in ſingulos inducetur.*

The Thirty-firſt Figure.

The Optick Projection of a Corinthian *Cornice, with the Capital and Part of the Column.*

IN this Figure the Line of the Plan is CIE, that of the Horizon is DFO; the Point of Sight is O, the Point of Diſtance D; the Geometrical Elevation of the *Corinthian* Capital, with its Entablature, is A; whoſe Diviſions are ſeen in the Perpendicular CD. The Length and Breadth of the Geometrical Plan B are equal, and the Plan is put into Perſpective after the uſual Method; to wit, by transferring the Diviſions of Breadth and Length into the Line CIE; from the Points of Breadth drawing Viſuals to the Point of Sight; and from thoſe of Length occult Lines to the Point of Diſtance: by which Interſection you have all that's neceſſary for putting the Plan into Perſpective. For the Lines of Length are Parts of viſual Rays, as is manifeſt by GN, HL; and the Lines of Breadth are made Parallels to the Ground-line, from the Interſections before-mention'd, as is ſeen in NL. Moreover, if the Horizontal Line DO were ſo prolong'd, as to receive another Point of Diſtance equidiſtant from O; half the diagonal Lines of the great Square GNLH, and of the leſſer Squares contain'd therein, would tend to one Point of Diſtance, and the other half to the other.

The Elevation of the Length is put in Perſpective, by continuing the Parallels to CE, till they cut the Viſual IO; and from thence dropping Lines parallel to IK: Then transferring into IK the Diviſions of the Perpendicular CD, from them make viſual Lines to the Point of Sight, and draw the ſeveral Members of the Upright; whoſe Breadths are the Parts of Viſuals, and their Heights Parts of Perpendiculars, or Lines parallel to IK. Laſtly, from the Plan and Elevation of the Length, you delineate the finiſh'd Cornice and Capital: But that you may more eaſily draw the Modillions, firſt make them in a ſquare Form, as in M; and that will very much aſſiſt you to give the Scroll of each a more agreeable Turn.

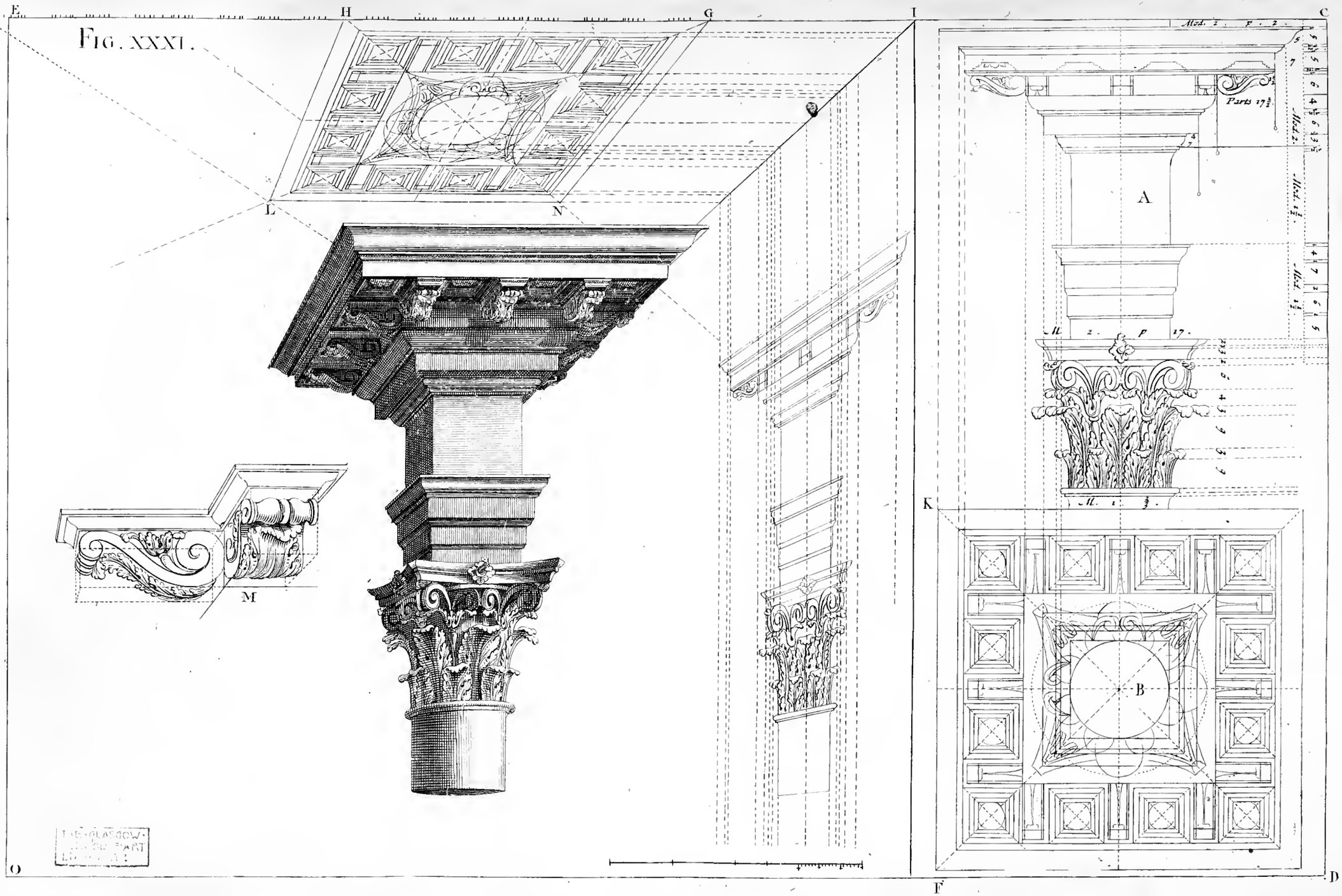


FIG. XXXI.

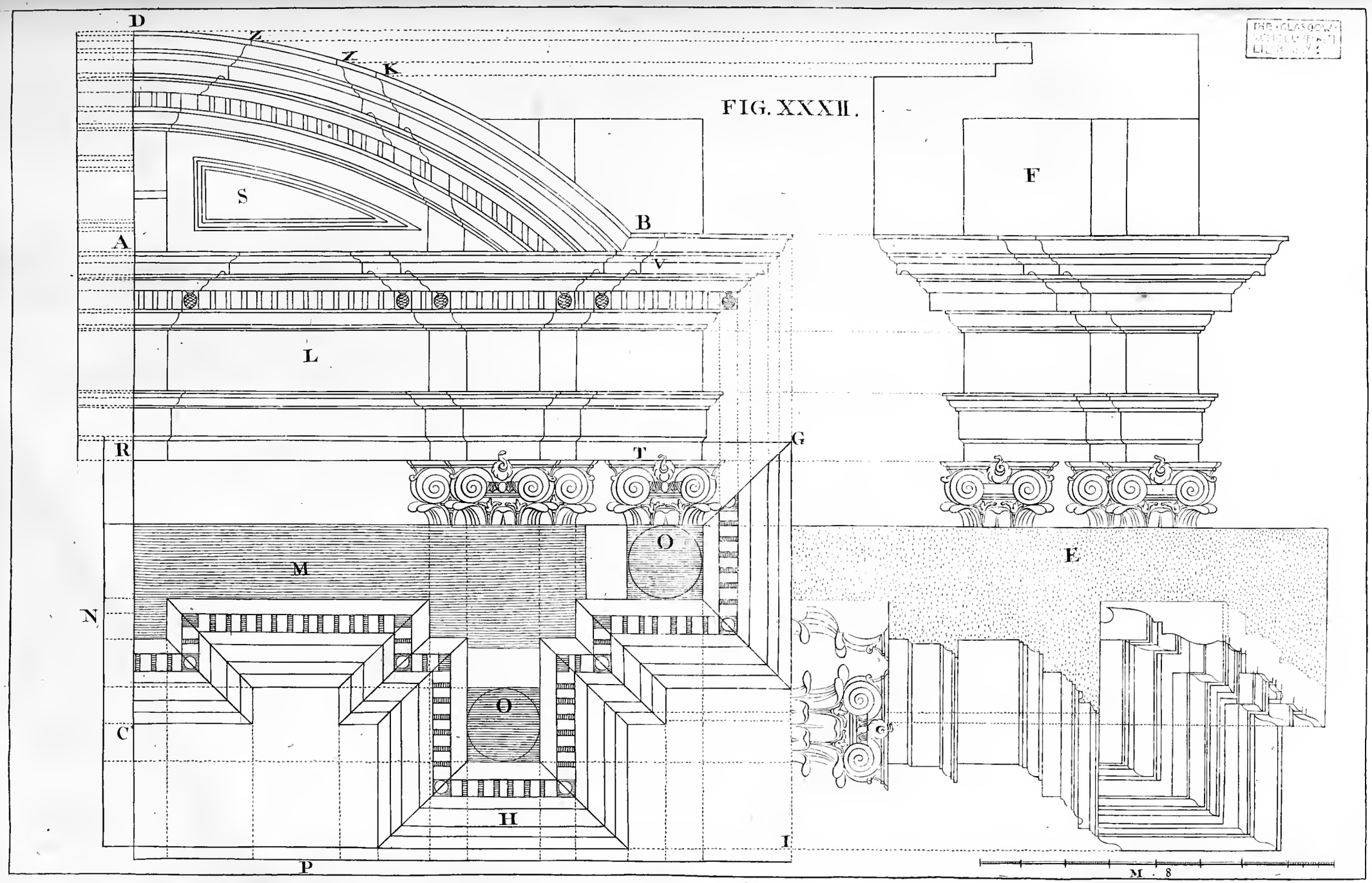


FIG. XXXII.
D
Z
Z
K
S
B
A
V
L
F
R
T
G
O
M
E
N
O
C
G
H
I
P
M . 8

Figura Trigeſimaſecunda.

Delineatio geometrica coronicis, Ordinis COMPOSITI.

T hoc ſchema grandius ac diſtinctius eſſet, ejus medietatem dumtaxat ſuſcepi delineandum. P N *eſt veſtigium geometricum.* M *eſt ſolidus paries.* O O *ſpatia columnarum. In* H *ſunt crepidines coronicis. Elevatio geometrica latitudinis ædificii conſtat epiſtylio* T, *zophoro* L, *& coronâ* V, *ſupra quam eminet faſtigium* S.

Jam ut inveniatur centrum arcuum, diſtantiæ A V *fiat æqualis diſtantia* A C. *Poſitaque una cuſpide circini in* C, *alia extendatur uſque ad* V: *ita fient arcus quorum ultimus eſt* B D, *omneſque ſunt concentrici. Elevatio* F *oſtendit longitudinem ædificii ex parte* G I; *elevatio* E *oſtendit longitudinem ipſius ex parte* D R.

The Thirty-ſecond Fig.

The Geometrical Deſign of a Cornice, of the COMPOSITE *Order.*

HAT this Figure might be larger and more diſtinct, I have here deſcrib'd only the Half of it. P N is the Geometrical Plan. M is the ſolid Wall. O O are the Places of the Columns. H ſhews the Projectures of the Cornice. The Geometrical Elevation of the Breadth of the Frontiſpiece, conſiſts of the Architrave T, the Freeze L, and the Cornice V, over which is rais'd the Pediment S.

For finding the Center of the arch'd Lines of the Pediment, make the Diſtance A C equal to that of A V; and placing one Point of the Compaſſes in C, extend the other to V, and deſcribe the Arch. The other Arches, of which B D is the utmoſt, have all the ſame Center. The Elevation F ſhews the Length of the Work on the Side G I. The Upright E ſhews the Length of the ſame on the Front D R.

Figura Trigeſimatertia.

Deformatio coronicis COMPOSITÆ.

FIGURA hæc trigeſimatertia minus ardua tibi videbitur, ſi ex ea delineandam primùm ſuſcipias medietatem quæ reſpondet veſtigio P N *& elevationi* B R *figuræ trigeſimæſecundæ; rejecto in ultimum faſtigio, poſtquàm cætera compleveris. Linea* B V *eſt horizontalis. Punctum oculi eſt* V, *punctum diſtantiæ remotum eſt ab* V *ſpatio* B V, *additis modulis quatuordecim cum dimidio. Linea plani eſt* A R, *in quam ex* Q *verſus* A *transfertur latitudo* P; *ex* Q *verſus* R *transfertur longitudo* N, *cum omnibus earum diviſionibus; ut ex punctis latitudinis fiant viſuales ad punctum oculi; & ex punctis longitudinis fiant occultæ ad punctum diſtantiæ. Ex his habes quicquid neceſſarium eſt ad projectionem opticam veſtigii, ut oſtendimus figurâ trigeſimaprimâ. Eademque methodo, quam ibi ſervavimus, contrahes elevationem* P *longitudinis coronicis: ac tum ex illa, tum ex veſtigio, eruetur coronix nitida more conſueto.*

Ut delineetur faſtigium, transferendæ ſunt in lineam A B *diviſiones ipſius ex elevatione* F *figuræ trigeſimæſecundæ, ac ducendæ viſuales ad punctum oculi, additis lineis terminativis uniuſcujuſque membri, quæ accipientur ex veſtigio* Q *opticè deformato. Centrum* O *arcuum faſtigii nitidi, remotum eſt à ſummitate coronicis, medietate diſtantiæ, quam habent ungues quadræ cui faſtigium ipſum incumbit. Ac proinde, ſi accipias ex elevatione* P *diverſas altitudines membrorum faſtigii; latitudines verò accipias ex veſtigio* Q; *opus tuum feliciter abſolves.*

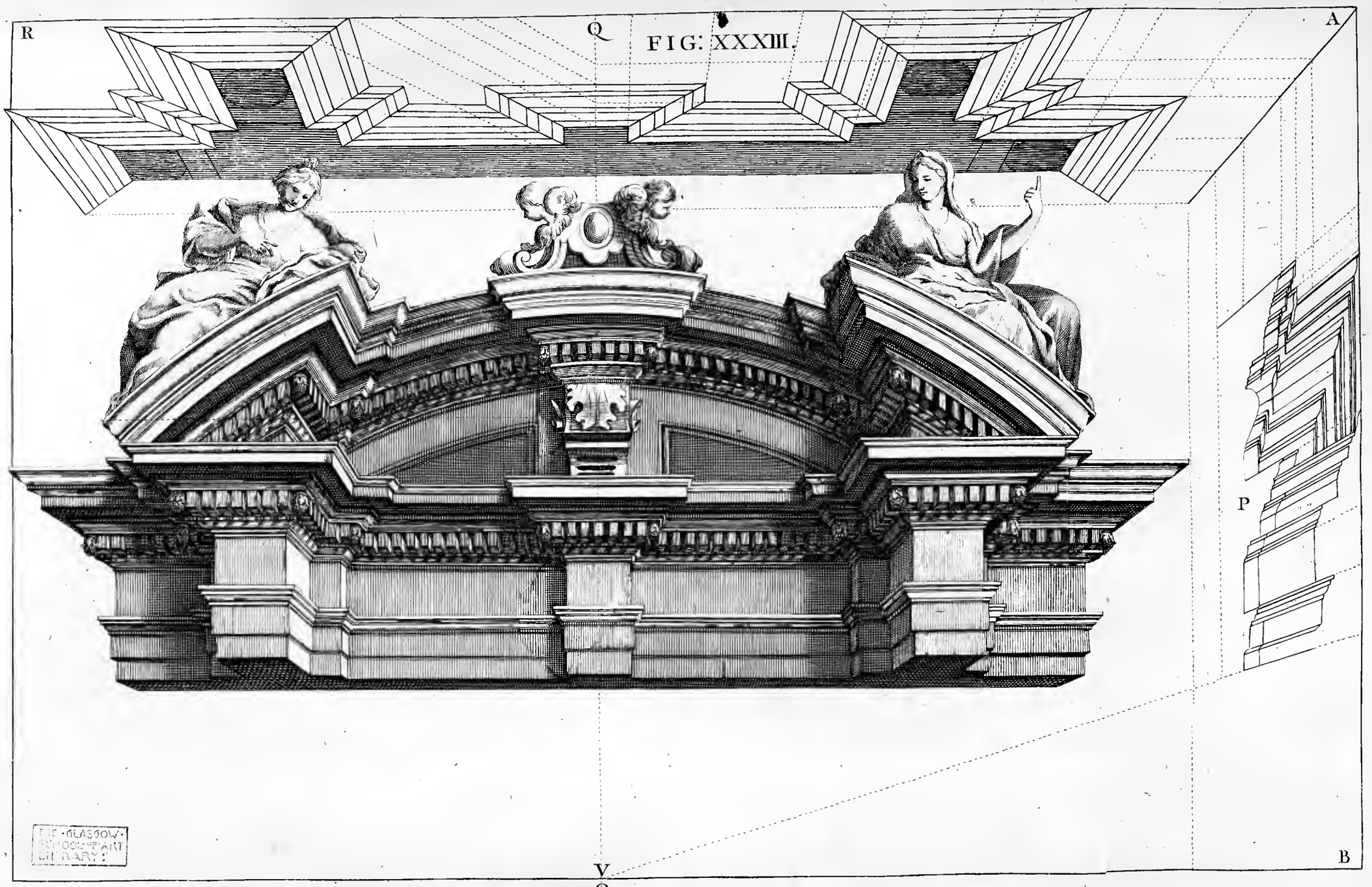
The Thirty-third Figure.

A COMPOSITE *Cornice in Perſpective.*

THIS Thirty-third Figure will be found the leſs difficult, if you firſt attempt that Half which anſwers to P N in the Plan, and B R in the Upright of the Thirty-ſecond Figure; leaving the Pediment, till all the reſt be finiſh'd. The Line B V is the Horizontal. V is the Point of Sight; the Point of Diſtance is fourteen Modules and a half without the Point B, more than the Interval B V. The Line of the Plan is A R, in which from Q toward A you have the Diviſions of Breadth of the foregoing Plan P; and from Q to R thoſe of the Length thereof N: From the former, Viſuals are drawn to the Point of Sight; and from the latter, occult Lines to the Point of Diſtance. And from theſe you have all that's neceſſary for putting the Plan in Perſpective; as was ſhewn in the Thirty-firſt Figure. By the Method there obſerv'd, you may alſo deſcribe the Perſpective-Elevation of the Length P; and from this, and the Plan, delineate the finiſh'd Cornice after the uſual Manner.

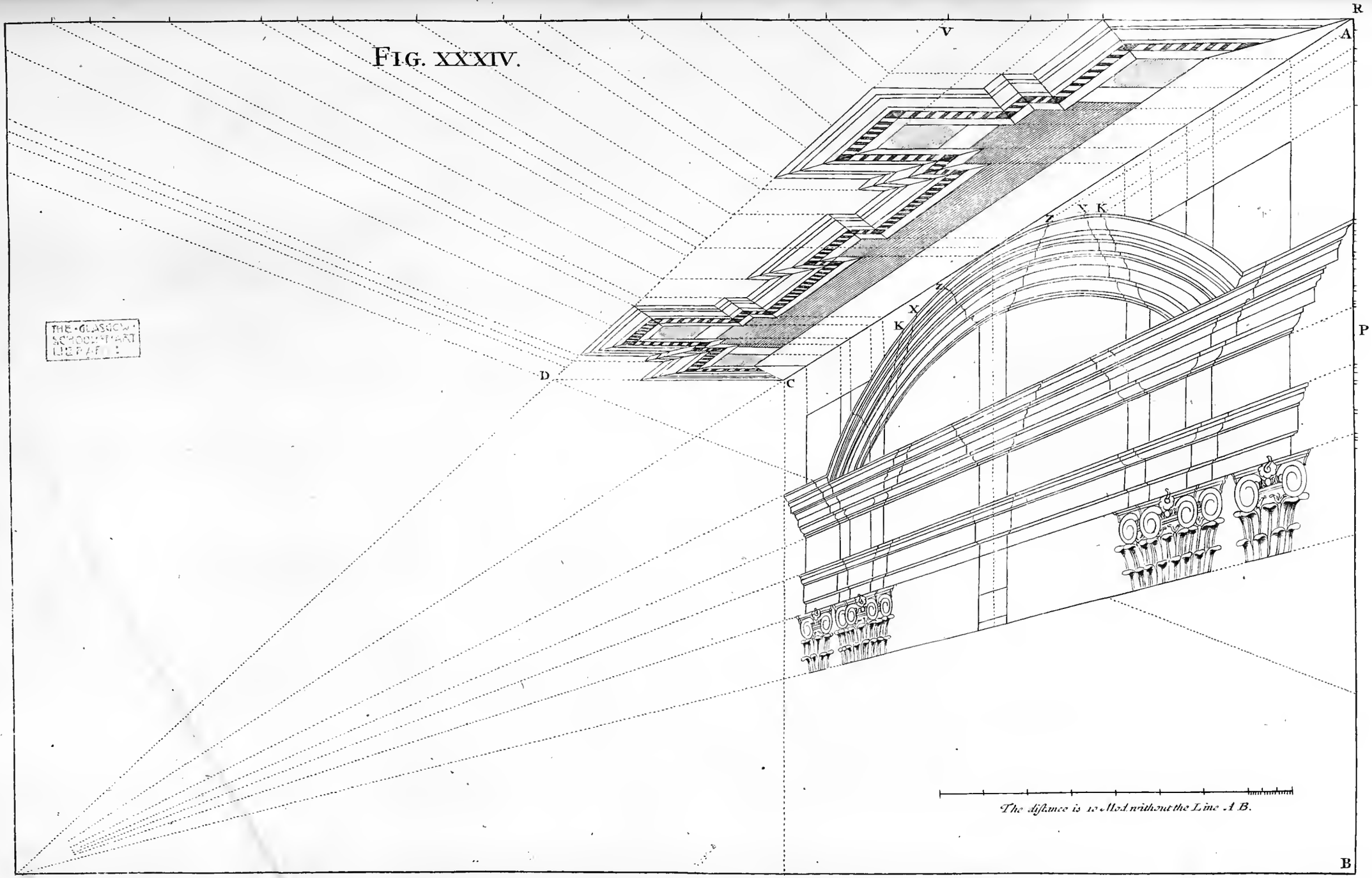
For making the Pediment, the Diviſions of the Elevation F in the Thirty-ſecond Figure, muſt be transferr'd into the Line A B, and Viſuals drawn from them to the Point of Sight; giving to each Member its proper Out-line and Contour, as may be taken from the Perſpective-Plan Q. The Center O of the Arches in the finiſh'd Pediment, is plac'd below the upper Member of the Cornice, as much as half the Extent of the upper Fillet from whence the Pediment ſprings. And by taking the ſeveral Heights of the Members thereof, from the Elevation P; and the Breadths from the Plan Q; you will ſucceſsfully finiſh and complete your Work.

FIG: XXXIII.



THE GLASGOW SCHOOL OF ART LIBRARY

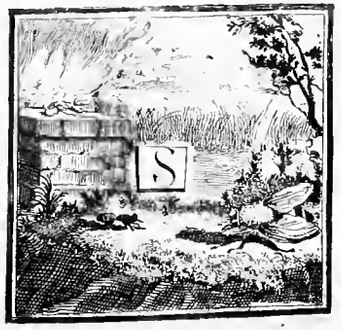
Fig. XXXIV.



THE GLASGOW SCHOOL OF ART LIBRARY

Figura Trigeſimaquarta.

Præparatio ad figuram trigeſimamquintam.



I placuerit conferre figuram trigeſimamtertiam cum præſenti figura trigeſimaquarta, dignoſces veſtigium & elevationem coronicis Compoſitæ alio modo hic deformari, mutando ſcilicet longitudinem in latitudinem, & latitudinem in longitudinem. Propterea hæc figura tantum ſpatii occupat, ut eam ſeorſim à coronice nitida delineare oportuerit.

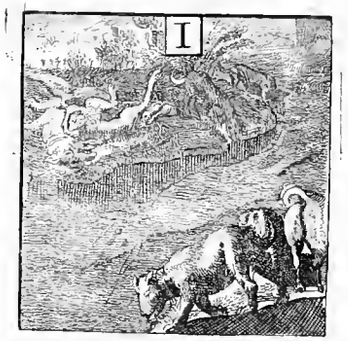
Diviſiones latitudinis in veſtigio incipiunt ex V *verſus* R, *& ſunt eædem cum diviſionibus rectæ* IG *figuræ trigeſimæſecundæ. Diviſiones longitudinis incipiunt ex* V *verſus* S, *& ſunt eædem cum diviſionibus rectæ* IP *duplicatis. Ex diviſionibus latitudinis fiunt viſuales ad punctum oculi; ex diviſionibus longitudinis fiunt rectæ ad punctum diſtantiæ; cum reliquis quæ neceſſaria ſunt ad complendum veſtigium* AVDC.

Elevatio longitudinis coronicis & faſtigii, opticè contrahitur per lineas parallelas ad lineam plani AS; *quæ ubi pervenerint ad viſualem* AC, *continuentur cum aliis parallelis ad perpendiculum* P, *ut diximus figurâ trigeſimaprimâ. In idem perpendiculum* P *tranſferuntur ex figurâ trigeſimaſecundâ diviſiones rectæ* DR; *& inſuper altitudines, quas puncta* KXZ *habent ſupra rectam* VA; *fientque viſuales ad punctum oculi: ſectiones autem viſualium cum parallelis, ad perpendiculum* P, *dabunt ſex puncta ſimæ faſtigii, reſpondentia punctis* KXZ *duplicatis, figuræ trigeſimæſecundæ; earumque ductu formandus eſt ſupremus arcus. Eodem artificio fient reliqui omnes.*

Facilius delineabitur coronix, cujus maximam partem occupant lineæ viſuales ad punctum oculi: porrò, membra omnia, exceptâ ſimâ, communia ſunt coronæ & faſtigio. Adeòque puncta ſimilia in lineis terminativis membrorum ſingulorum, ex quibus deſumuntur crepidines & ungues figuræ nitidæ, ſunt parallela ad perpendiculum P.

The Thirty-Fourth Fig.

Preparatory to the Thirty-fifth.



IF you pleaſe to compare the Thirty-third Figure with this Thirty-fourth Figure, you will perceive the Plan and Elevation of this *Compoſite* Cornice to be delineated differently from that; to wit, by making the Length of that the Breadth of this, and the Breadth of that the Length of this: On which Account, this Figure takes up ſo much Room, that there was a neceſſity of drawing the finiſh'd Cornice on a ſeparate Paper.

The Diviſions of Breadth in the Plan begin from V toward R, and are the ſame with thoſe of the Line IG in the Thirty-ſecond Figure. The Diviſions of Length are ſet from V toward S; and are the ſame with thoſe of the Line IP in the Thirty-ſecond Figure; which being the half, is here doubled. From the Diviſions of Breadth, Lines are drawn to the Point of Sight: and from thoſe of the Length, Lines to the Point of Diſtance; with the farther Requiſites for completing the Plan AVDC in Perſpective.

The Upright of the Length of the Cornice and Pediment, is made by producing Parallels to the Ground-line AS, till they interſect the Viſual AC; and thence continuing Lines parallel to the Perpendicular P, as was directed in the Thirty-firſt Figure. Into the ſame Perpendicular P are tranſferr'd the Diviſions of the Line DR in the Thirty-ſecond Figure; and alſo the Heights which the Points KXZ have above VA in the ſame Figure. From all which, Viſuals are drawn to the Point of Sight; which being interſected by the Perpendiculars, give ſix Points on the *Sima* of the Pediment, which anſwer to the ſaid Points KXZ of the Thirty-ſecond Figure doubl'd: By theſe the outward Arch is form'd. And by the ſame Rule, you find Points for all the others.

You will more eaſily draw the Cornice, the greateſt Part of it conſiſting of viſual Lines to the Point of Sight: Moreover, all the Members, except the upper *Sima*, are common both to the Cornice of the Entablature, and to the Pediment; ſo that the correſponding Points, in the Out-lines of their ſeveral Members, from whence the Breaks and Contours of the finiſh'd Piece are taken, are found in the ſame Parallels to the Perpendicular P.

Figura Trigeſimaquinta.

Deformatio coronicis COMPOSITÆ, ad latus inſpectæ.

RTIFICIUM nitidæ coronicis, ex veſtigio & elevatione figuræ trigeſimæquartæ eruendæ, non differt ab eo quod ſæpe traditum eſt. Itaque ſuppoſito, quod linea plani & horizontis, ac puncta oculi ac diſtantiæ, habeant in hoc ſchemate ſitum omnino eundem, quem habent in præcedenti; ope duorum circinorum, invenientur diſtantiæ, quas anguli neceſſarii ad integram delineationem coronicis, habent à linea plani, & à linea normali ad ipſam lineam plani. Nam ducendo lineas viſuales, aliaſque lineas parallelas ad ipſum perpendiculum, cum terminis & flexibus qui conveniunt ſingulis membris, complebitur delineatio.

In faſtigio viſuales ſunt penitus occultæ: puncta autem ſimilia H & L, *ex quibus faſtigium incipit introrſum flecti, incidunt in unam eandemque viſualem. Idipſum dico de aliis punctis ſimilibus. Nam lineæ rectæ omnes, quæ in figura trigeſimatertia ſunt parallelæ ad lineam plani, in figuris trigeſimaquarta & trigeſimvquinta ſunt partes linearum viſualium.*

The Thirty-fifth Figure.

A Side-View of the COMPOSITE *Cornice, in Perſpective.*

THE Manner of drawing this finiſh'd Cornice, from the preceding Plan and Elevation, is the ſame with that ſo often ſhewn you. Admitting therefore, that the Lines of the Plan and Horizon, and the Points of Sight and Diſtance, have the very ſame Poſition in this, that they had in the preceding Scheme; all the Angles neceſſary for delineating the entire Cornice, are readily found by the help of two pair of Compaſſes; taking their Diſtances one way from the Ground-line; and the other way from a Line perpendicular to the ſame: Then drawing the viſual and perpendicular Lines, and keeping the Place and Contour of the ſeveral Mouldings, you complete your Deſign.

In the Pediment the viſual Lines are wholly occult; and the Points H and L, where the Pediment begins to break back, being of like Height, are found in one and the ſame Viſual: And the ſame may be ſaid of all the Points that are of equal Height from the Plan; for all the right Lines, which in the Thirty-third Figure are Parallels to the Ground-line, in the Thirty-fourth and Thirty-fifth Figures are Parts of the viſual Lines.

FIG. XXXV.

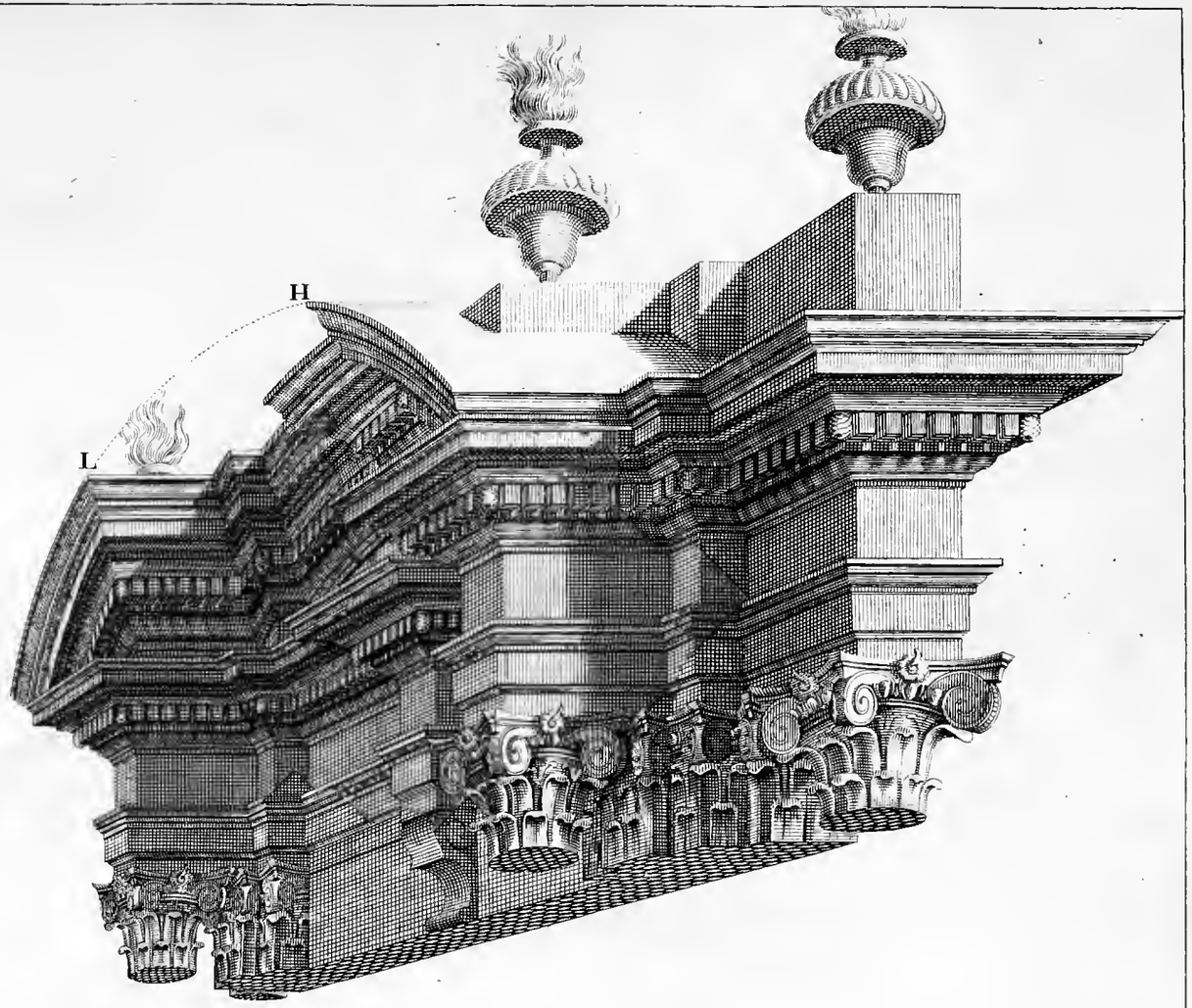


FIG. XXXVI.

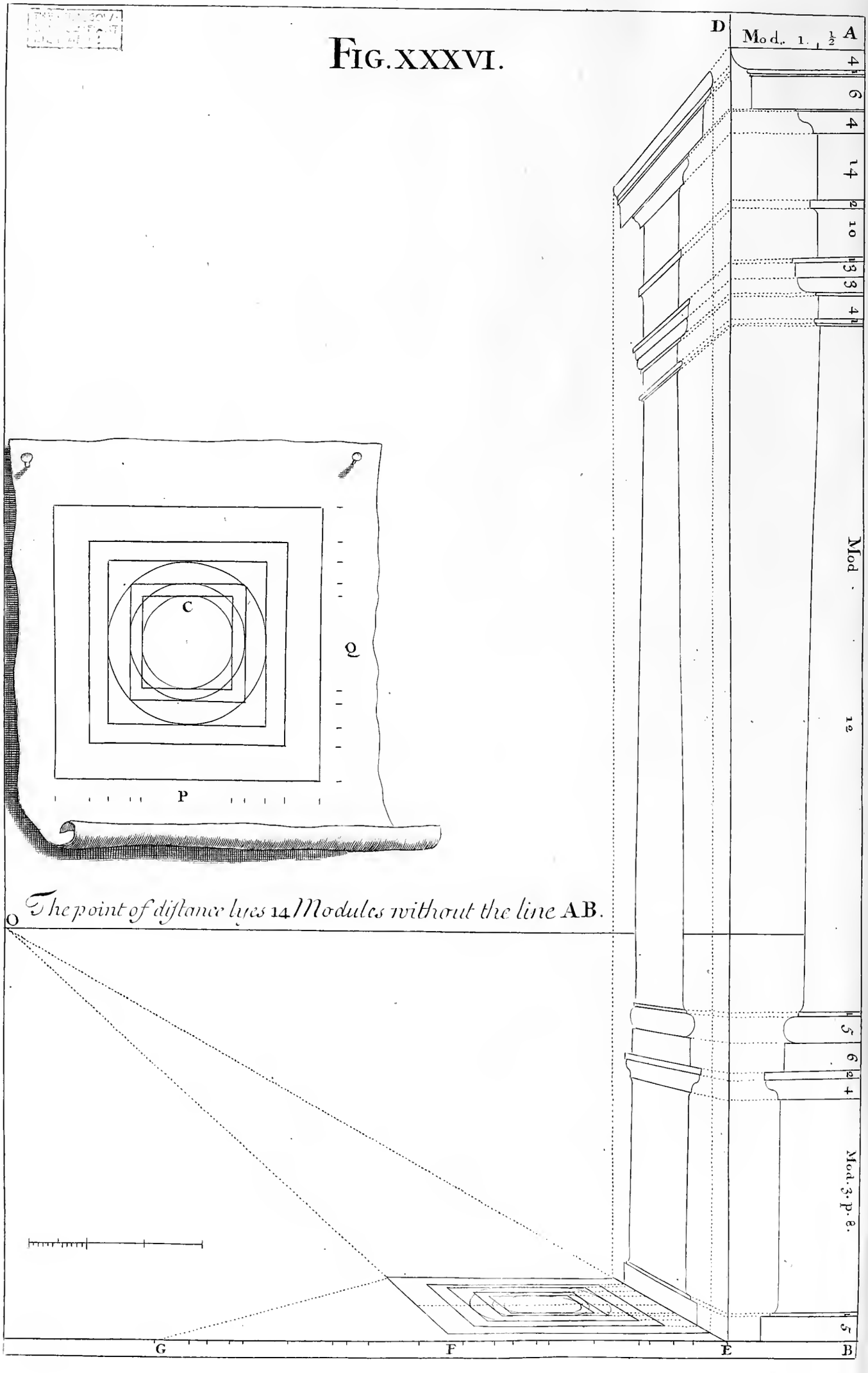

D
A
Mod. 1. ½
4½
6
4
14
2
10
1
3
3
4½
Mod.
12
C
Q
P
O
The point of distance lyes 14 Modules without the line AB.
5
6
2
4
Mod. 3. p. 8.
5
G
F
E
B

FIGURA Trigeſimaſexta.

Præparatio ad Figuram trigeſimamſeptimam.

N veſtigio Geometrico C, *& in ejus elevatione* A B, *præcipuas tantùm lineas adnotavi, ne figuram confunderem, & ut ſtudioſorum induſtriæ aliquid relinquerem. Linea plani* E G *habet diviſiones latitudinis* P, *& longitudinis* Q, *veſtigii Geometrici* C. *Ex punctis latitudinis ducentur more ſolito viſuales ad* O *punctum oculi ; ex punctis longitudinis fient occultæ ad punctum diſtantiæ, quod extra lineam* A B *protenditur modulis quatuordecim : & ubi occultæ ex diviſionibus longitudinis ſecant viſualem* F O, *fiunt parallelæ ad lineam plani* E F, *adhibitis ſectionibus talium parallelarum cum viſualibus, ad complendam deformationem veſtigii.*

Eædem lineæ quæ in veſtigio deformato ſunt parallelæ ad E F, *prolongantur uſque ad viſualem* E O, *& continuantur cum aliis parallelis ad perpendiculum* D E. *Fiunt quoque viſuales ad punctum oculi ex diviſionibus elevationis* A B *tranſlatis in perpendiculum* D E ; *adhibitis ſectionibus talium parallelarum cum viſualibus, ad complendam deformationem longitudinis elevationis.*

The Thirty-ſixth FIGURE.

Preparatory to the Thirty-ſeventh Figure.

N the Geometrical Plan C, and in the Elevation thereof A B, I have only mark'd the principal Lines, as well for avoiding Confuſion in the Figure, as that ſomething might be left to the Induſtry of the Studious. The Line of the Plan E G has the Diviſions of Breadth P, and of Length Q, of the Geometrical Plan C. From the Points of Breadth are drawn, as uſual, Viſuals to the Point of Sight O ; From the Points of Length occult Lines are produc'd to the Point of Diſtance, which lies fourteen Modules without the Line A B : And where the occult Lines from the Diviſions of Length cut the Viſual F O, Parallels are made to the Ground-line E F ; and from the Interſections of thoſe Parallels with the Viſuals, you complete the Delineation of the Plan in Perſpective.

The Lines which in the Plan are Parallel to E F, being prolong'd to the Viſual E O, are then continu'd parallel to the Perpendicular D E. And from the Diviſions of A B, produc'd to D E, viſual Lines are drawn to the Point of Sight ; which interſecting the Perpendiculars aforeſaid, you from thence find the Length of the Elevation in Perſpective.

FIGURA Trigeſimaſeptima.

Deformatio Columnæ ETRUSCÆ.

X præparatione quam exhibuimus Figurâ trigeſimaſextâ, eruitur columna hæc nitida Ordinis Etruſci, opticè imminuta per latitudines & altitudines partium ſingularum; quæ accipiuntur ope duorum circinorum, ut ſæpiùs dictum eſt.

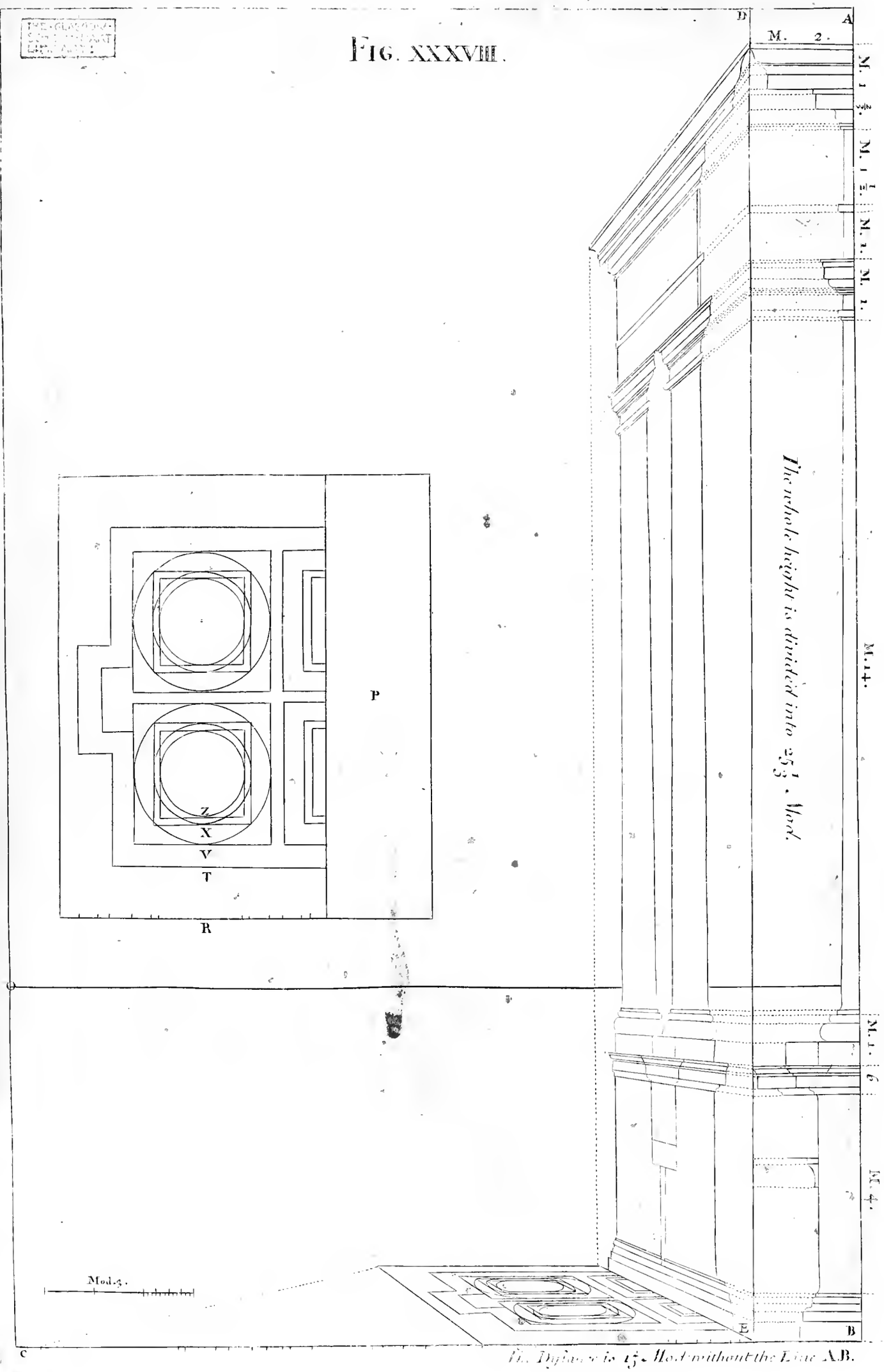
The Thirty-ſeventh FIGURE.

A TUSCAN *Column in Perſpective.*

FROM the Preparation exhibited in the Thirty-ſixth Figure, is drawn this complete Piece of the *Tuſcan* Order, brought into Perſpective by means of the Breadths and Heights of the ſeveral Parts, exactly taken off with the Compaſſes, as has been often ſaid.

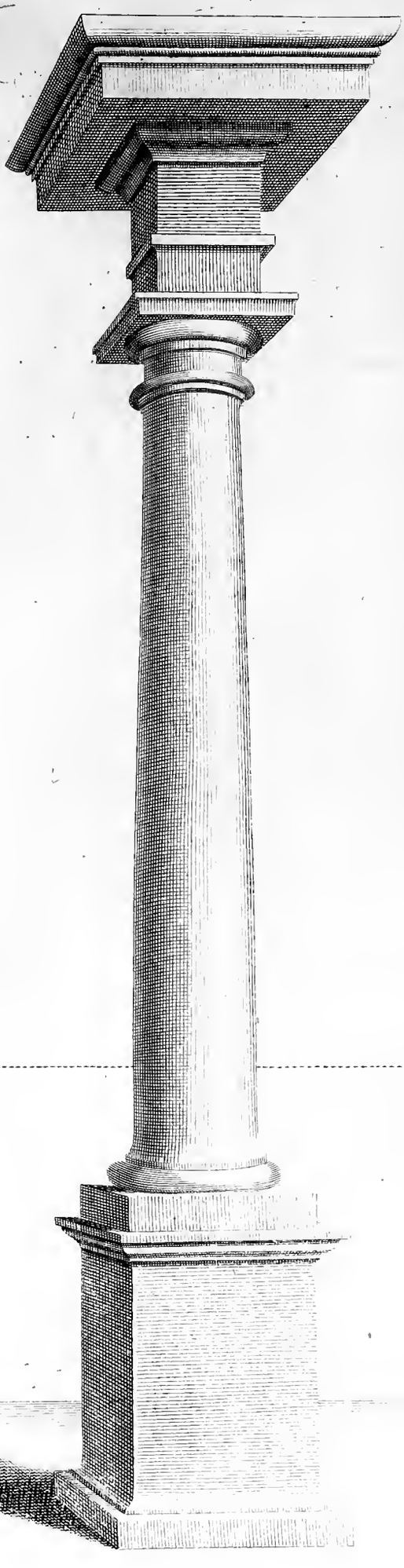
THE GLASGOW SCHOOL OF ART LIBRARY

FIG. XXXVIII.



The Distance is 15 Mod. without the Line A.B.

FIG. XXXVII.



O

FIGURA Trigeſimaoctava.

Præparatio ad Figuram trigeſimamnonam.

ÆC Figura eſt ſimillima Figuræ trigeſimæ-ſextæ. In veſtigio P *limes prominentiæ coronicis eſt* R; *coronæ verò in ſtylobatâ eſt* T; *Soliditas ſtylobatæ eſt* V; *ambitus columnæ in imo eſt* X, *in ſummo* Z.

The Thirty-eighth FIGURE.

Preparatory to the Thirty-ninth Figure.

HIS Figure is very much the ſame with the Thirty-ſixth. In the Plan P, the utmoſt Projecture of the Cornice is R; that of the Cap of the Pedeſtal is T; the Trunk of the Pedeſtal is V; the naked Shaft of the Column at bottom is X, at top is Z.

FIGURA Trigeſimanona.

Deformatio ædificii DORICI.

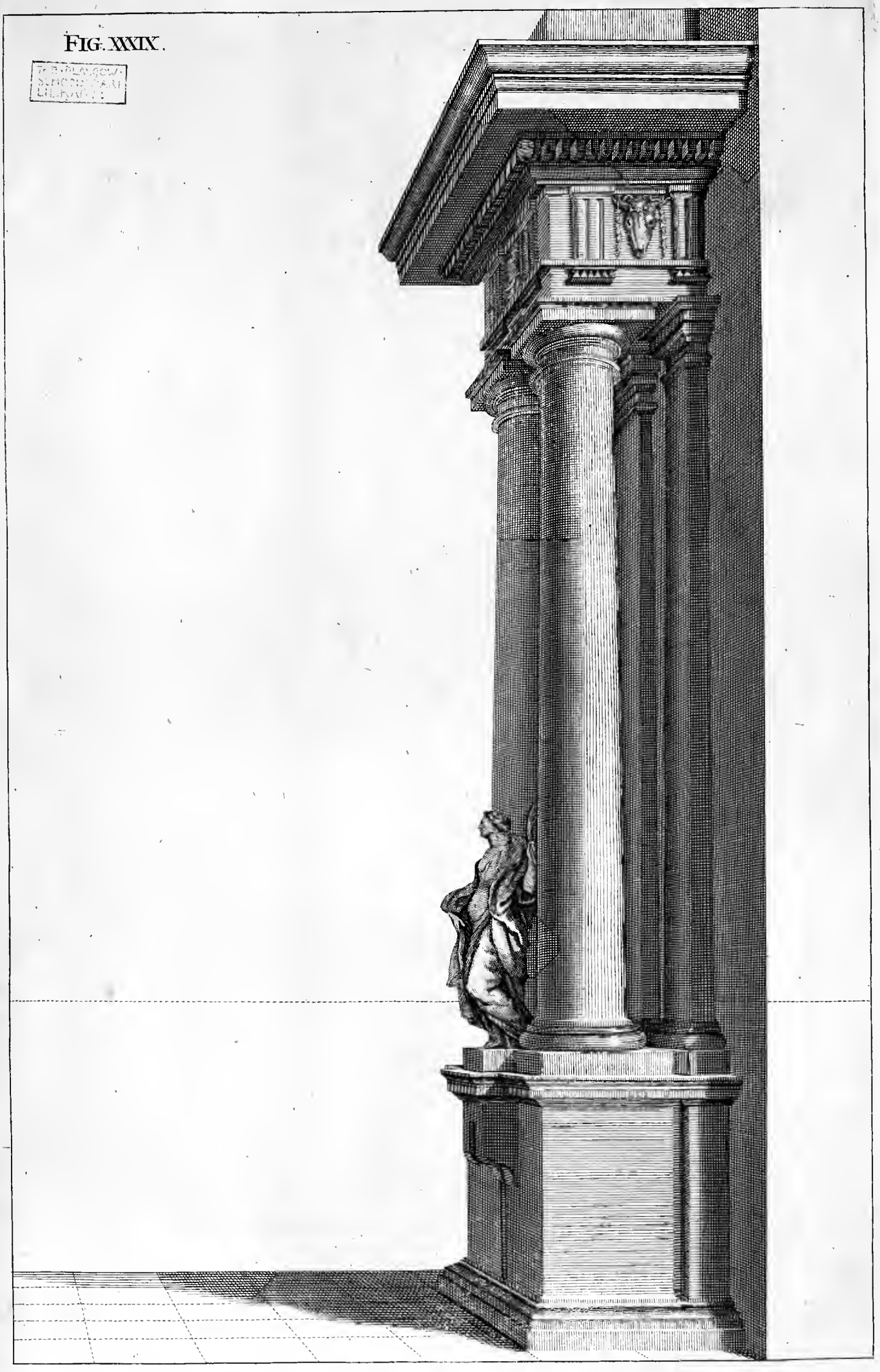
ABES hoc loco ædificium Doricum, addito ſtatuæ unius ornamento. Velim autem, ut ſi Figuram aliquam ex his deſumptam, delineandam aſſumas, aliquid mutes ſaltem in loco punctorum oculi aut diſtantiæ. Hoc modo majores in hac arte progreſſus facies; & ſi alicubi cælator aberraverit, ex lapſu illius nullum ſenties detrimentum.

The Thirty-ninth FIGURE.

A Piece of DORICK *Architecture in Perſpective.*

IN this Plate you have a *Dorick* Compoſition, with the additional Ornament of a ſingle Statue; but I would adviſe, when you undertake to work after any of theſe Deſigns, you would at leaſt place the Points of Sight and Diſtance ſomewhat differing from thoſe here given; which Practice will both greatly further your Progreſs in this Art, and prevent any Inconvenience, that may ariſe from a Miſtake of the Engraver.

FIG. XXXIX.



THE GLASGOW SCHOOL OF ART LIBRARY

Fig. XL.

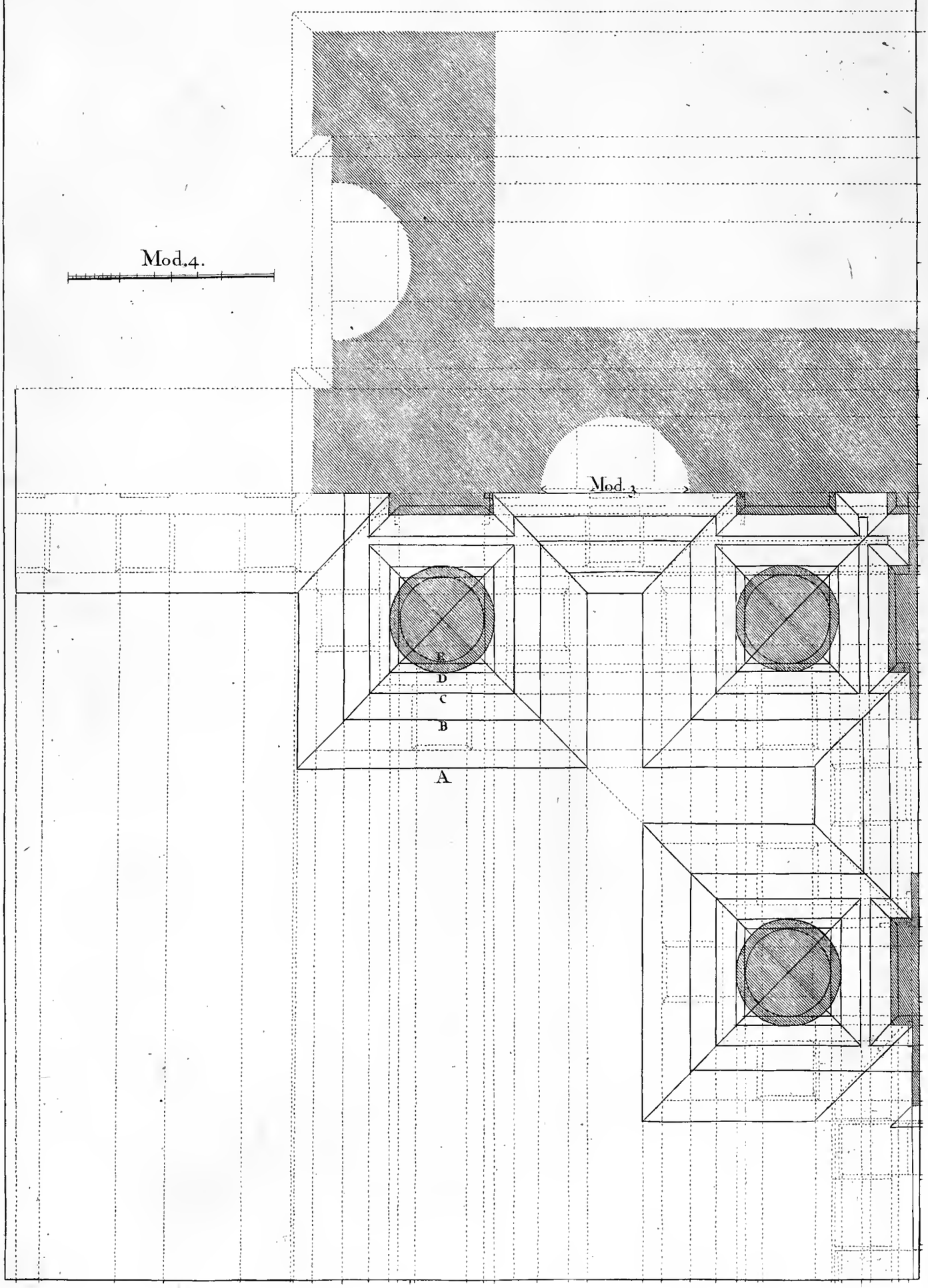


FIGURA Quadrageſima.

Veſtigium geometricum ædificii Ordinis DORICI.

T ſtudioſorum, qui ſedulo ſe exercuerint in praxibus hucuſque traditis, & ad majora inhient, utilitati ſerviam, delineandam ſuſcepi medietatem arcûs cum tribus columnis, ac totidem ſtatuarum loculamentis. Ad vitandam autem confuſionem, ea duntaxat membra in veſtigio adumbrantur, quæ recenſuimus figurâ trigeſimaoctavâ, & oſtendunt characteres A, B, C, D, E.

The Fortieth FIGURE.

The Geometrical Plan of a Deſign, of the DORICK *Order.*

OR the Benefit of the Studious, who having reduc'd to Practice the Rules hitherto laid down, aim at yet greater Things; I have here undertaken to delineate half an Arch adorn'd with Three Columns, and as many Niches for Statues. But to avoid Confuſion, I have given full Lines to thoſe Members only, which were mention'd in the Thirty-eighth Figure, and which are here denoted by the Characters A, B, C, D, E.

FIGURA Quadrageſimaprima.

Elevatio geometrica ædificii Dorici.

X veſtigio geometrico eruitur hæc elevatio geometrica longitudinis ædificii noſtri. Et iccirco figura iſta quadrageſimaprima, cujus menſuræ omnes deſumptæ ſunt ex Barozzio, congruit longitudini figuræ quadrageſimæ.

The Forty-firſt FIGURE.

The Geometrical Elevation of the foregoing Deſign.

HIS Upright is drawn from the foregoing Geometrical Plan; and therefore all the Parts of this Deſign, whoſe Meaſures are taken from *Vignola*, exactly anſwer thoſe of the Fortieth Figure.

FIG. XLI.

THE GLASGOW SCHOOL OF ART LIBRARY

1½M
1½M
1 M
1 M
M.1. p.8.
M.14.
1 M
M. 2.
M. 1.
p.6.
M. 4.
p.10.
M.
4.

Fig. XLII.

THE GLASGOW SCHOOL OF ART LIBRARY

FIGURA Quadrageſimaſecunda.

Modus vitandi confuſionem, in contractione veſtigiorum, & elevationum.

13

CONTRACTIONES veſtigii figuræ quadrageſimæ, & elevationis figuræ quadrageſimæprimæ, ob nimiam obliquitatem quam habent, valde confuſæ ſunt. Medebimur tamen incommoda iſta, uti fecimus figuris decimâ, & undecimâ. Et oſtendit chartula, exhibens in parvo tum figuram hanc quadrageſimam ſecundam, tum quatuor ſequentes.

The Forty-ſecond FIGURE.

The Manner of avoiding Confuſion, in reducing Plans and Elevations into Perſpective.

24

THE Reducing into Perſpective the Plan of the Fortieth Figure, and the Upright of the Forty-firſt Figure, would become very confus'd, thro' the great Obliquity of the Rays: We have therefore remedy'd the Inconveniences of both, by the Methods explain'd in the Tenth and Eleventh Figures. And this Plate contains in little, what is more at large deſcrib'd in Parts, as well in this, as the four ſubſequent Figures.

FIGURA Quadrageſimatertia.

Contractio veſtigii figuræ quadrageſimæ.

LINEA plani multò remotior eſt à linea horizontali in hoc ſchemate, quàm in præcedenti. Ideo iſtud veſtigium vacat omni confuſione. Cætera patent ex iis quæ ſæpius dicta ſunt, & ex figuræ hujus inſpectione. Oportet autem, rectas parallelas ad lineam plani, prolongari uſque ad viſualem TO, *(quæ cadit extra paginam) ut adminiculo parallelarum, fiat elevatio longitudinis noſtri ædificii, de qua dicemus figurâ quadrageſimaquartâ.*

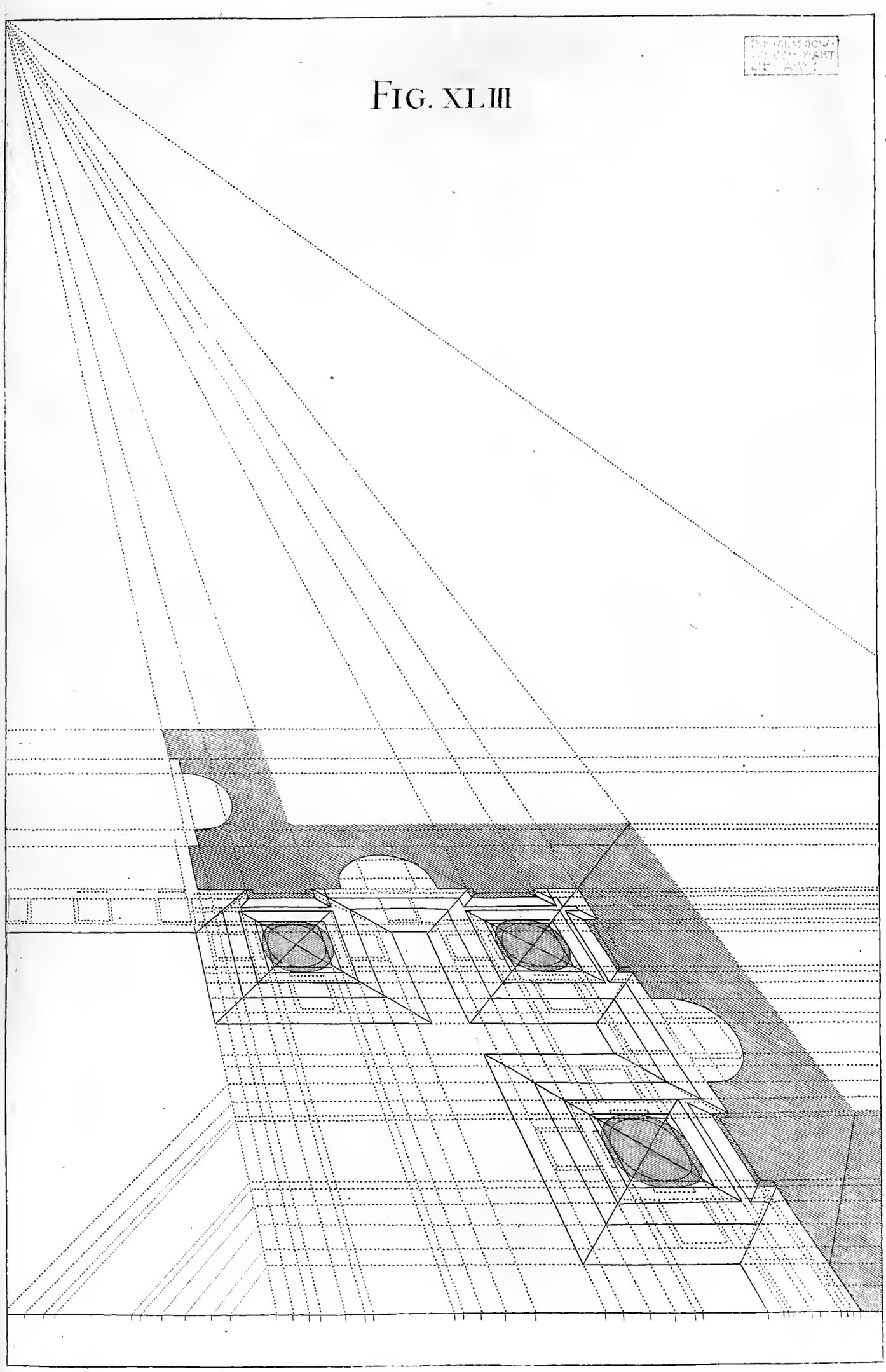
The Forty-third FIGURE.

The Plan of the Fortieth Figure in Perſpective.

BY placing the Ground-line in this, much more remote from the Horizontal, than it is in the foregoing Figure, all Confuſion is here avoided. The reſt is evident from what has been often ſaid on this Head, and a bare Inſpection of the Figure. Parallels of the Ground-line muſt nevertheleſs be continu'd to the Viſual TO, which falls without this Page; that from them may be rais'd the Elevation of the Length of this Deſign, which we ſhall handle in the next Figure.

THE GLASGOW
SCHOOL OF ART
LIBRARY

Fig. XLIII



THE GLASGOW ART GALLERY & MUSEUM LIBRARY

Fig. XLIV.

FIGURA Quadrageſimaquarta.

Contractio elevationis figuræ quadrageſimæprimæ.

ECTÆ parallelæ ad lineam plani figuræ quadrageſimætertiæ, ubi pervenerint ad viſualem TO, *continuandæ ſunt, more ſolito, cum parallelis ad lineam perpendicularem. In hanc autem transferre oportet omnes diviſiones, quas ex Barozzio habet elevatio hujus ordinis; ac ducere viſuales. Quomodo autem, adminiculo viſualium & parallelarum, compleatur elevatio, conſtat ex figura & clariùs ex chartula figuræ quadrageſimæſecundæ. Numeri* 1, 2, 3, 4, *geminati oſtendunt centra & altitudines ſemicirculorum ſeu arcuum figuræ quadrageſimæquintæ; videlicet, numerus inferior deſignat centrum, ſuperior verò deſignat altitudinem ſemicirculi.*

The Forty-fourth FIGURE.

The Elevation of the Forty-firſt Figure in Perſpective.

16

WHEN the Parallels to the Ground-line in the Forty-third Figure, are prolong'd to the Viſual TO, they are then, as uſual, to be continu'd Parallels to the Perpendicular: On which Perpendicular, thoſe Diviſions given by *Vignola*, for the Proportion of this Order, are to be transferr'd; and Viſuals drawn from them to the Point of Sight. How by theſe Viſuals and Parallels the Elevation is rais'd in Perſpective, is manifeſt in part from this Figure, but more clearly from the Forty-ſecond Figure. The Numbers 1, 2, 3, 4, which you here ſee doubl'd, give the Centers and Heights of Semicircles of the Arches in the Forty-fifth Figure; the lower Numbers denoting the Centers, and the upper Numbers the Heights of the Semicircles of the ſame.

FIGURA Quadrageſimaquinta.

Dimidium ædificii DORICI optice deformati.

23

UIC figuræ delineandæ plures præiverunt, ejuſdemque latitudines mutuati ſumus ex figura quadrageſimatertia, altitudines ex quadrageſimaquarta. Supereſt autem, ut lumina & umbræ ſcitè inducantnr in ſingulas partes ædificii.

The Forty-fifth FIGURE.

One Half of the DORICK *Deſign in Perſpective.*

24

HE foregoing Figures being preparatory to this, the Breadths are taken from the Forty-third, and the Heights from the Forty-fourth Figure. It only remains, that the Lights and Shades be skilfully diſpos'd to each Part of the Work.

FIG. XLV.

FIG: XLVI.

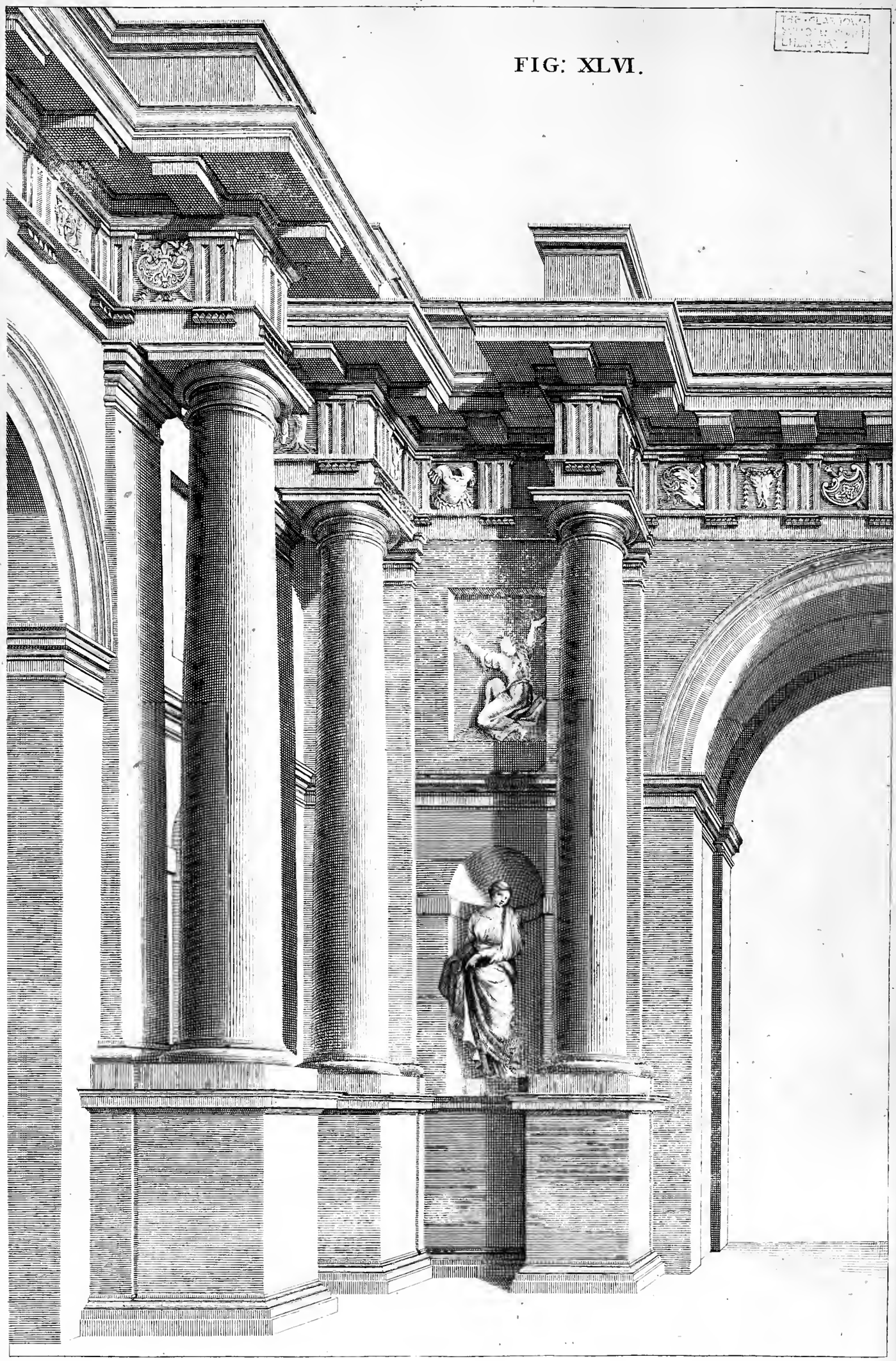


FIGURA Quadrageſimaſexta.

Alterum dimidium ejuſdem ædificii.

32

UPERSEDERE poteram delineatione alterius medietatis ædificii noſtri, verùm operæ non peperci, ut oſtenderem diverſitatem luminum & umbrarum, quæ conveniunt partibus cæteroqui omnino ſimilibus.

The Forty-ſixth FIGURE.

The other Half of the ſame Deſign.

45

Might very well have omitted this Half of the Deſign, but that I ſpar'd no Pains, to ſhew the Diverſity of the Lights and Shadows, that muſt be given to thoſe Parts of the Work, which in other Reſpects are alike.

FIGURA Quadrageſimaſeptima.

Veſtigia ædificii IONICI.

ESTIGIUM geometricum A *ædificii Ionici, ſub ſe habet ſuam deformationem* B. *Hæc autem ut evadat diſtinctior, lineam plani, quæ in ſequentibus figuris habebit diſtantiam* PE *ab horizontali* OE, *deorſum protraximus in* CD, *ut etiam fecimus figurâ quadrageſimaſecundâ & quadrageſimatertiâ. Linea viſualis* OM *eundem habet uſum, quem viſualis* OT *figuræ quadrageſimætertiæ; videlicet, ut in ea terminentur parallelæ ad lineam plani ex membris veſtigii* B, *eademque continuentur cum aliis parallelis ad rectam* EC, *pro deformandâ elevatione quam apponemus figurâ quadrageſimanonâ.*

The Forty-ſeventh FIGURE.

The Plan of an IONICK *Building.*

THE Geometrical Plan of this *Ionick* Work is A, underneath is its Perſpective B; to render which more diſtinct, the Ground-line that in the following Figures has only the Diſtance PE from the Horizontal EO, is here remov'd downward to CD, as was done in the Forty-ſecond and Forty-third Figures foregoing. The viſual Line OM is of the ſame uſe as that of OT, in the Forty-third Figure; namely, to terminate the Lines which are drawn from the Members of the Plan B parallel to the Ground-line; from whence they are again continu'd parallel to the Perpendicular EC, for making in Perſpective the Elevation inſerted in the Forty-ninth Figure.

O

The Horizontal line

The Distance is 16. Modules without the line E.C.

E

THE GLASGOW SCHOOL OF ART LIBRARY

FIG. XLVII.

P *The Ground line of the following Figure.*

A *The Line of Intersection.*

M

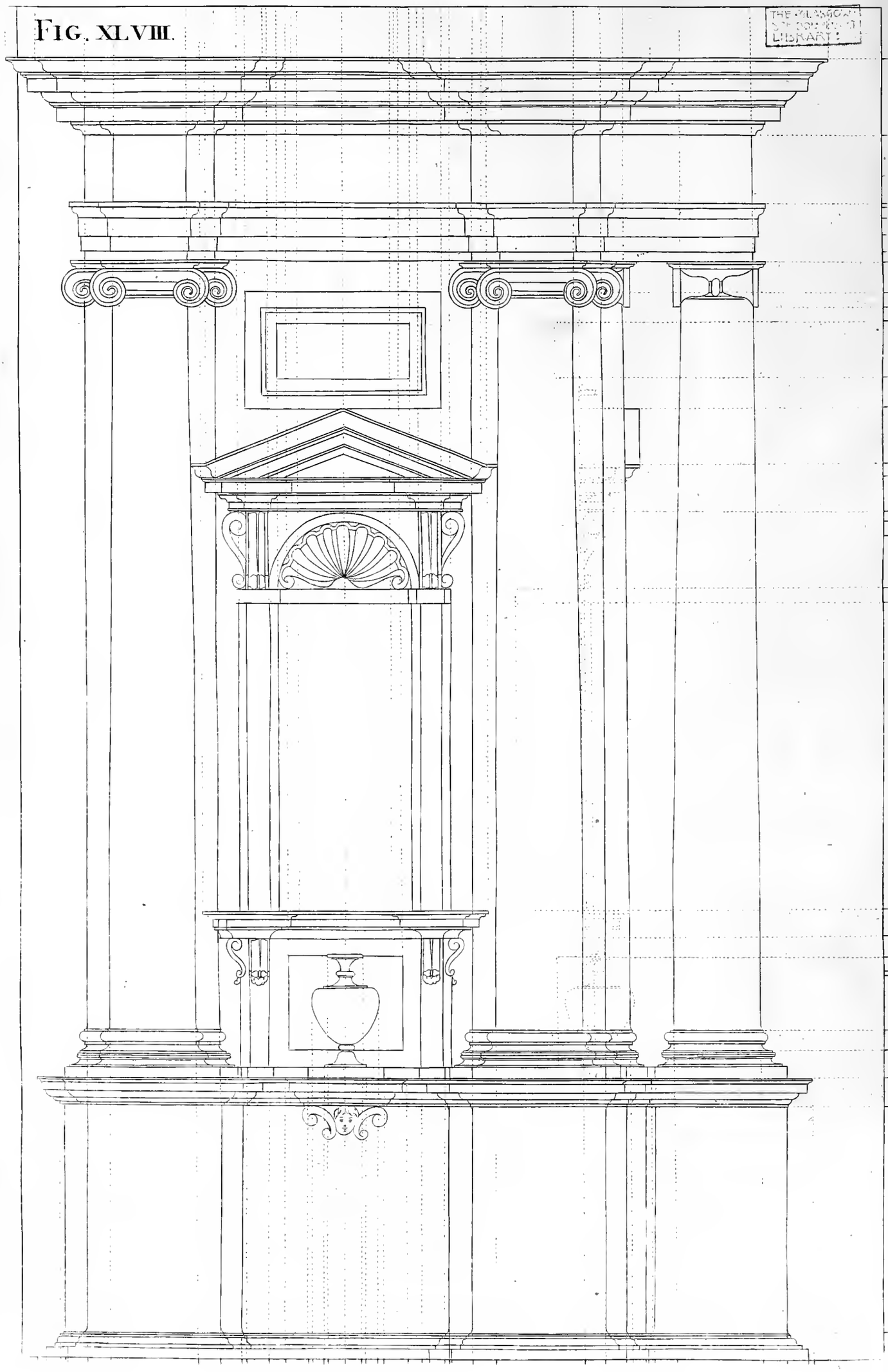
Mod. 5.

B

D

C

FIG. XLVIII.



THE MITCHELL
LIBRARY

FIGURA Quadrageſimaoctava.

Elevatio geometrica ædificii IONICI.

X hac elevatione, quæ clarè oſtendit membra totius ædificii ſecundum longitudinem diſſecti, deſumuntur altitudines ac terminationes membrorum ſingulorum. Peritiores tamen hac figurâ delineandâ ſuperſedere ſolent, quia terminationes haberi poſſunt ex veſtigio A *figuræ quadrageſimæſeptimæ, altitudinis verò ponendæ iterum ſunt figurâ ſequenti.*

The Forty-Eighth FIGURE.

The Geometrical Upright of the foregoing IONICK *Deſign.*

ROM this Figure (which diſtinctly ſhews the Compoſition of the whole Work, in reſpect of its Length) are taken the Heights and Terminations of the ſeveral Members thereof. But thoſe that are skill'd in this Art, uſually omit the delineating theſe Elevations; becauſe the Terminations may be taken from the Plan A in the Forty-ſeventh Figure; and the Heights muſt be repeated in the following Figure.

FIGURA Quadrageſimanona.

Deformatio Elevationis ædificii IONICI.

ÆC Figura, continens deformationem præcedentis elevationis, perficitur methodo illa, quam oſtendimus figurâ quadrageſimaſecundâ; nimirum, ex veſtigio B *figuræ quadrageſimæſeptimæ, ducere oportet parallelas ad lineam plani* CD, *quæ ubi pervenerint ad viſualem* OM, *continuandæ ſunt cum aliis parallelis ad lineam* EC. *Eaſdem parallelas in hanc figuram tranſlatas ſecant viſuales ex linea recta* AB, *in qua poſitæ ſunt altitudines ædificii Ionici, deſumpta vel ex figura præcedenti, vel ex Barozzio. Nullum autem eſt punctum in membris hujus elevationis, quod non inveniatur per ſectiones viſualium ex linea* AB, *cum parallelis ad eandem lineam.*

The Forty-ninth FIGURE.

The Elevation of the IONICK *Deſign in Perſpective.*

THIS Plate containing the Perſpective of the foregoing Upright, is drawn by the Method laid down in the Forty-ſecond Figure; to wit, from the Plan B of the Forty-ſeventh Figure, Parallels to the Ground-line CD are prolong'd to the Viſual OM; and thence are continu'd Parallels to the Perpendicular EC. Theſe being transferr'd into this Figure, are interſected by the viſual Lines that proceed from AB, which contains the Heights of this *Ionick* Compoſition, agreeable to the foregoing Figure, and the Rules deliver'd by *Vignola.* Now there is no Point in any Member of this Upright, but may be found by the Interſection which the viſual Line from AB makes with its reſpective Perpendicular.

FIG. XLIX.

FIG. I.

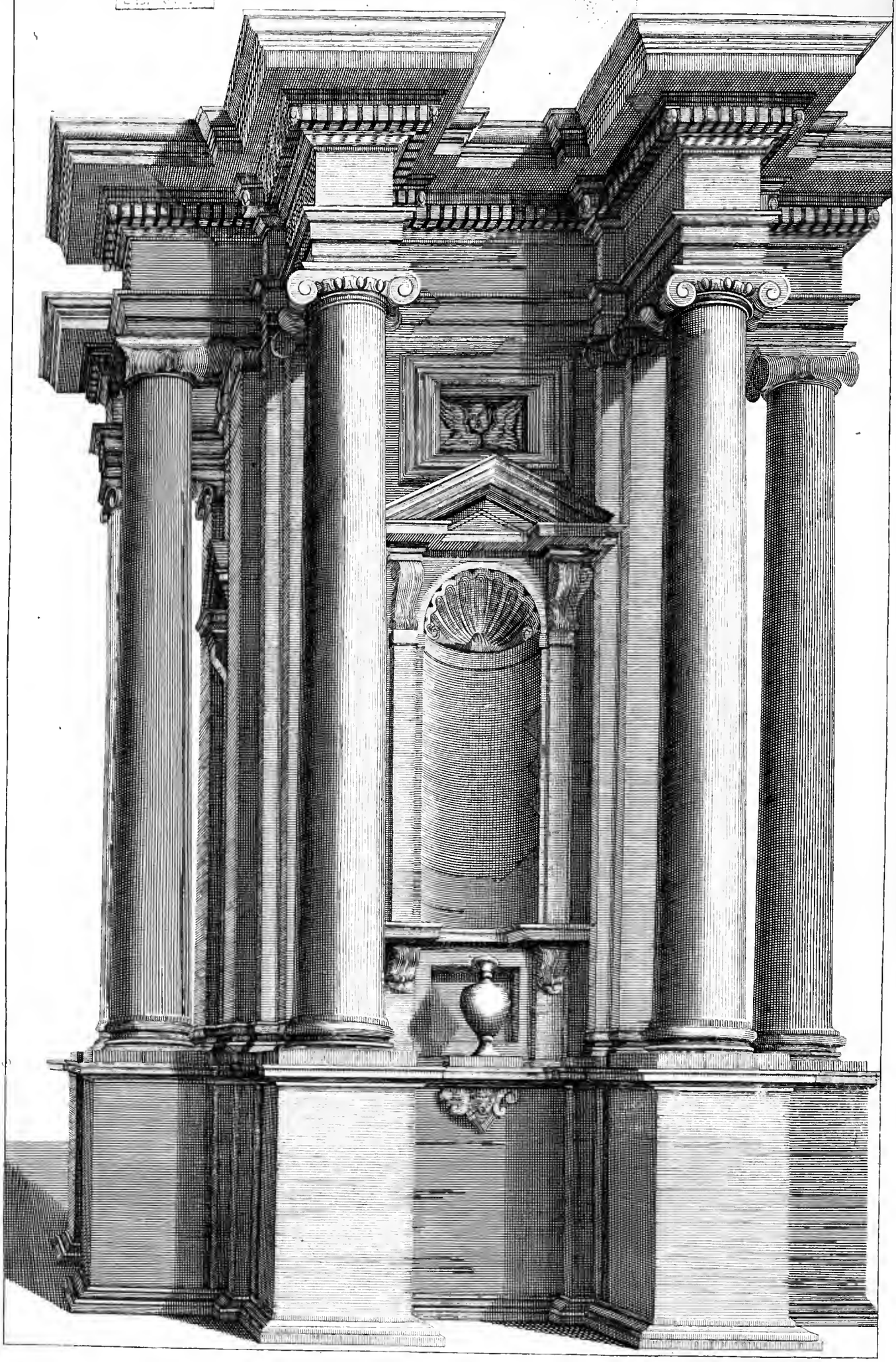
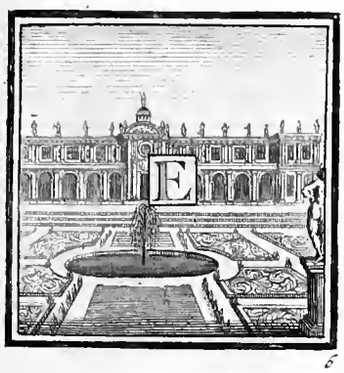


FIGURA Quinquageſima.

Architectura IONICA.



X veſtigio figuræ quadrageſimæ ſeptimæ, & ex elevatione figuræ quadrageſimænonæ, eruitur hoc ædificium Ionicum, quod eſſe poterit vel principium alicujus turris campanariæ, aut baſis cujuſpiam arcûs triumphalis. Vereor ut cælator ſuam diligentiam in hoc ſchemate ſatis probaverit. Ejus tamen errata facilè ipſe deteges, & omni ſtudio cavebis.

The Fiftieth FIGURE.

A Deſign of IONICK *Architecture,*

FROM the Plan of the Forty-ſeventh Figure, and from the Upright of the Forty-ninth Figure, is drawn this *Ionick* Piece; which might well ſerve for the lower Order of a Turret, or for part of a Triumphal-Arch. I fear the Engraver has not been ſo exact in this Scheme, as he ought; but you will readily diſcover his Miſtakes, and carefully beware of them.

FIGURA Quinquageſimaprima.

Ordo CORINTHIUS.

OMPLECTITUR hæc pagina molem contractam Ordinis Corinthii, cum ſuis præparationibus. Veſtigium A *exhibet parietem pone columnas cavum inſtar canalis. Idem veſtigium opticè deformatur in* D: *omiſſâque elevatione geometricâ, per ejus altitudines notatas in lineâ* BC *projicitur elevatio; ac methodo conſuetâ, ex veſtigio & elevatione componitur ædificium, addito ſtatuæ unius ornamento.*

The Fifty-firſt FIGURE.

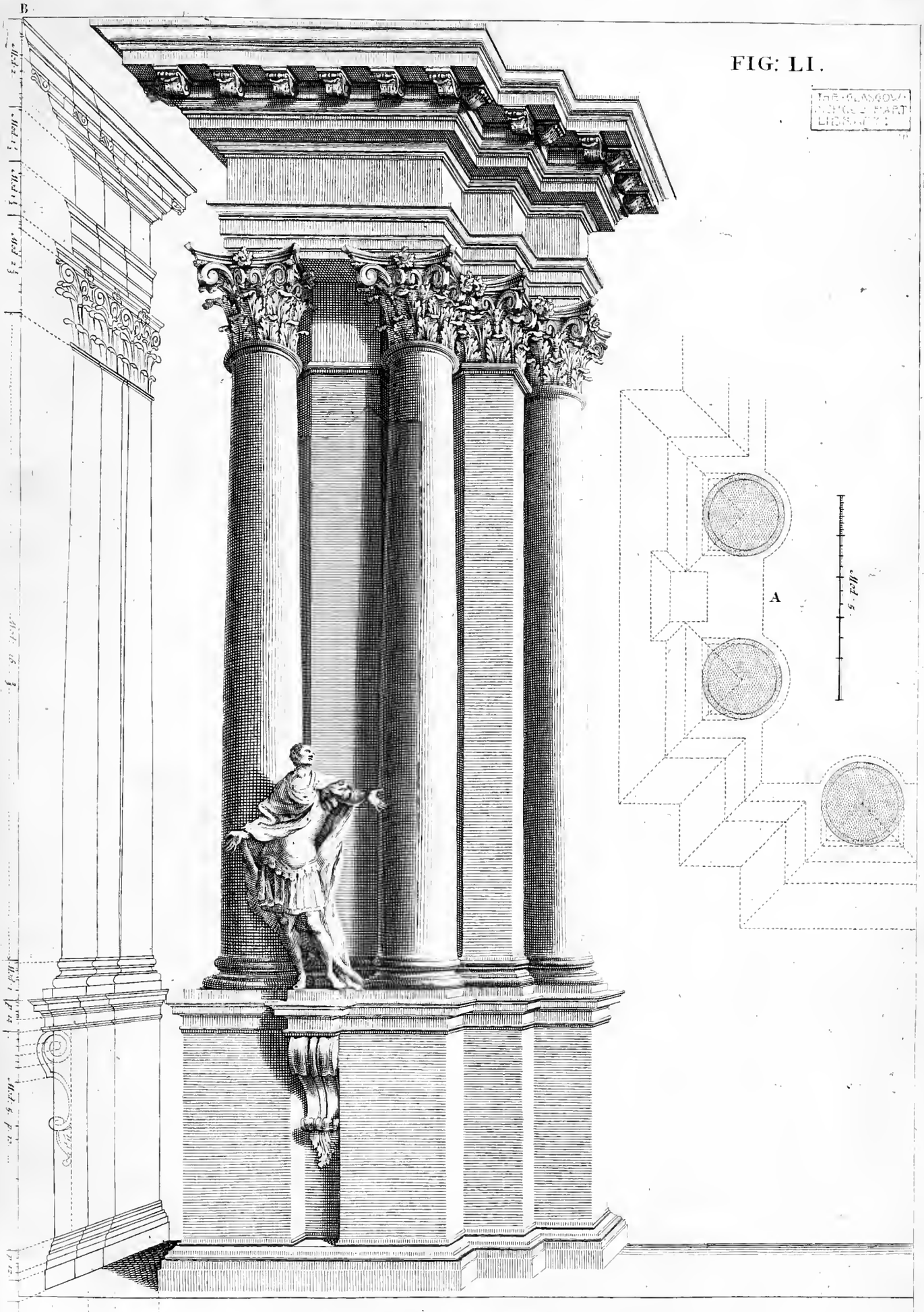
A CORINTHIAN *Deſign in Perſpective.*

HIS Plate contains the Perſpective of a *Corinthian* Work, with its Preparations. The Geometrical Plan A ſhews the Wall wrought hollow behind the Columns. The ſaid Plan in Perſpective is D: and leaving out the Geometrical Elevation, the Perſpective thereof is deſcrib'd, by transferring the Heights of the former into the Line BC. From the Perſpective-Plan and Upright the Deſign is finiſh'd after the uſual Manner; to which is added the Ornament of a ſingle Statue.

B

FIG: LI.

THE GLASGOW
SCHOOL OF ART
LIBRARY



THE GLASGOW SCHOOL OF ART LIBRARY

FIG. LII.

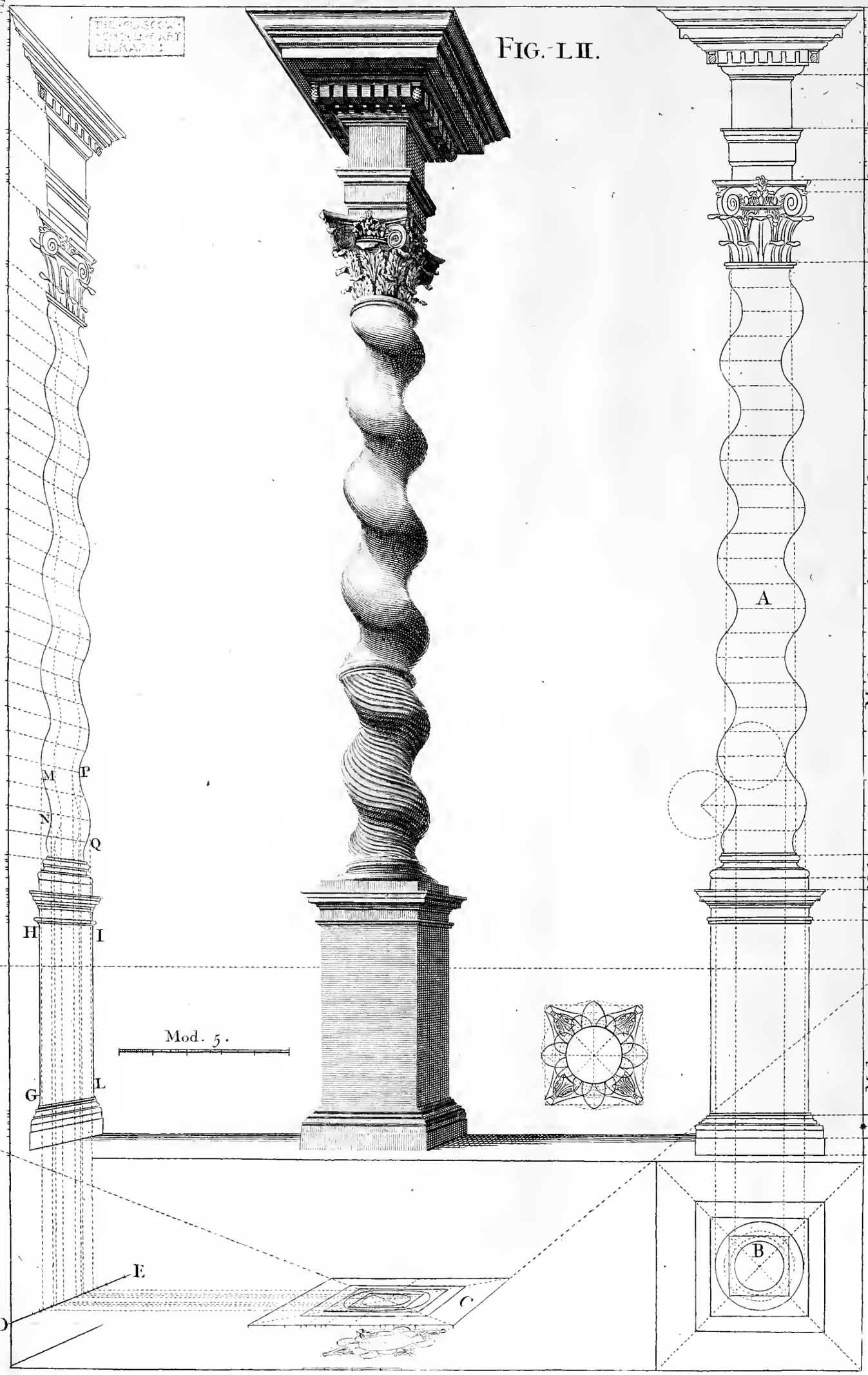


Figura Quinquageſimaſecunda.

Delineatio columnæ ſpiralis, Ordinis COMPOSITI.

OSITA elevatione Geometrica columnæ rectæ, ac diviſione illius in vigintiquatuor partes æquales, columna ſpiralis abſolvitur per partes circumferentiæ circulorum, quorum diametri ſunt æquales diverſis latitudinibus columnæ rectæ, ut oſtendit figura in A. *Ad projectionem opticam elevationis, notandæ ſunt quatuor occultæ rectæ, quæ ex terminis convexitatis & concavitatis infimarum ſpirarum ejuſdem elevationis* A, *deſcendunt ac deſinunt in duos circulos veſtigii geometrici* B. *Veſtigium ipſum opticè imminutum habetur in* C: *eædem autem ſunt maximæ hinc inde latitudines, tum in circulo majori, tum in convexitate infimarum columnæ ſpirarum; eædem ſunt maximæ latitudines, tum in circulo minori, tum in concavitate ipſarum ſpirarum; ut dignoſces applicando regulam ſpiris ſimul & circulis. Ex quatuor punctis maximæ latitudinis duorum circulorum, incipiunt quatuor lineæ parallelæ ad lineam plani, quæ ubi pervenerint ad viſualem* ED, *continuandæ ſunt cum parallelis ad perpendiculum* DF. *In eandem lineam* DF, *ex elevatione* A *transferre oportet vigintiquatuor partes æquales altitudinis columnæ, ac ducere viſuales ad* O *punctum oculi. Per ſectionem autem viſualium cum prædictis quatuor parallelis ad lineam* DF, *ducuntur lineæ undulatæ* MN, PQ, *ex quibus eruuntur lineæ utrinque terminativæ columnæ ſpiralis nitidæ. Ex linea verò* GH *habetur facies anterior ſtylobatæ, columnæ & coronicis; ex linea* IL *habetur facies eorum poſterior.*

20

The Fifty-ſecond FIGURE.

The Deſcription of a wreath'd Column, of the COMPOSITE *Order.*

HAVING made the Geometrical Elevation of a ſtreight Column, and divided the Height of its Shaft into Four and Twenty equal Parts; the Wreathing is deſcrib'd by Parts of the Circumference of Circles, whoſe Diameters are equal to the ſeveral Breadths, or Diameters, of the ſtreight Column; as is ſhewn in the Figure A. For putting the Upright into Perſpective, four ſtreight occult Lines are of uſe, which deſcend from the Extent of the Swellings and Sinkings of the lower Wreaths of the Column A; and terminate in two Circles of the Geometrical Plan B. The ſaid Plan laid down in Perſpective is C. The utmoſt Extent of the greater Circle determines that of the Convex Parts of the lower Wreaths: The greateſt Breadth of the leſſer Circle gives that of the hollow Parts of the ſaid Wreaths; as may be perceiv'd, by applying a Ruler from the Wreaths to the Circles of the Plan. From the Four Points of greateſt Breadth in thoſe Circles, four Lines parallel to the Ground-line are continu'd to the Viſual ED, and thence again continu'd parallel to the Perpendicular DF. From the Elevation A, the four and twenty equal Parts of the Column's Height, are transferr'd into the Line DF, and Viſuals drawn from each to the Point of Sight O. By the Interſections of thoſe Viſuals with the Four Perpendiculars aforeſaid, are drawn the wav'd Lines MN, PQ; from which, both the Out lines of the finiſh'd Column are deſcrib'd. But the Fore-part of the Pedeſtal, Column, and Cornice, is taken from the Line GH; the Back-part of the ſame from the Line IL.

23

Fig. Quinquageſ. tertia A.

Ordines Architecturæ, deſumpti ex Palladio & Scamozzio.

E Ordinibus Architecturæ, præter Barozzium, egregiè ſcripſerunt Palladius & Scamozzius; ac ſinguli, jure merito, ſuos habent aſſeclas & patronos. Ut ergò, etiam juxta laudatiſſimorum Autorum placita, opticas projectiones facere poſſis, omnes Ordines in hac pagina exhibere volui, ut in eorum Libris inveniuntur.

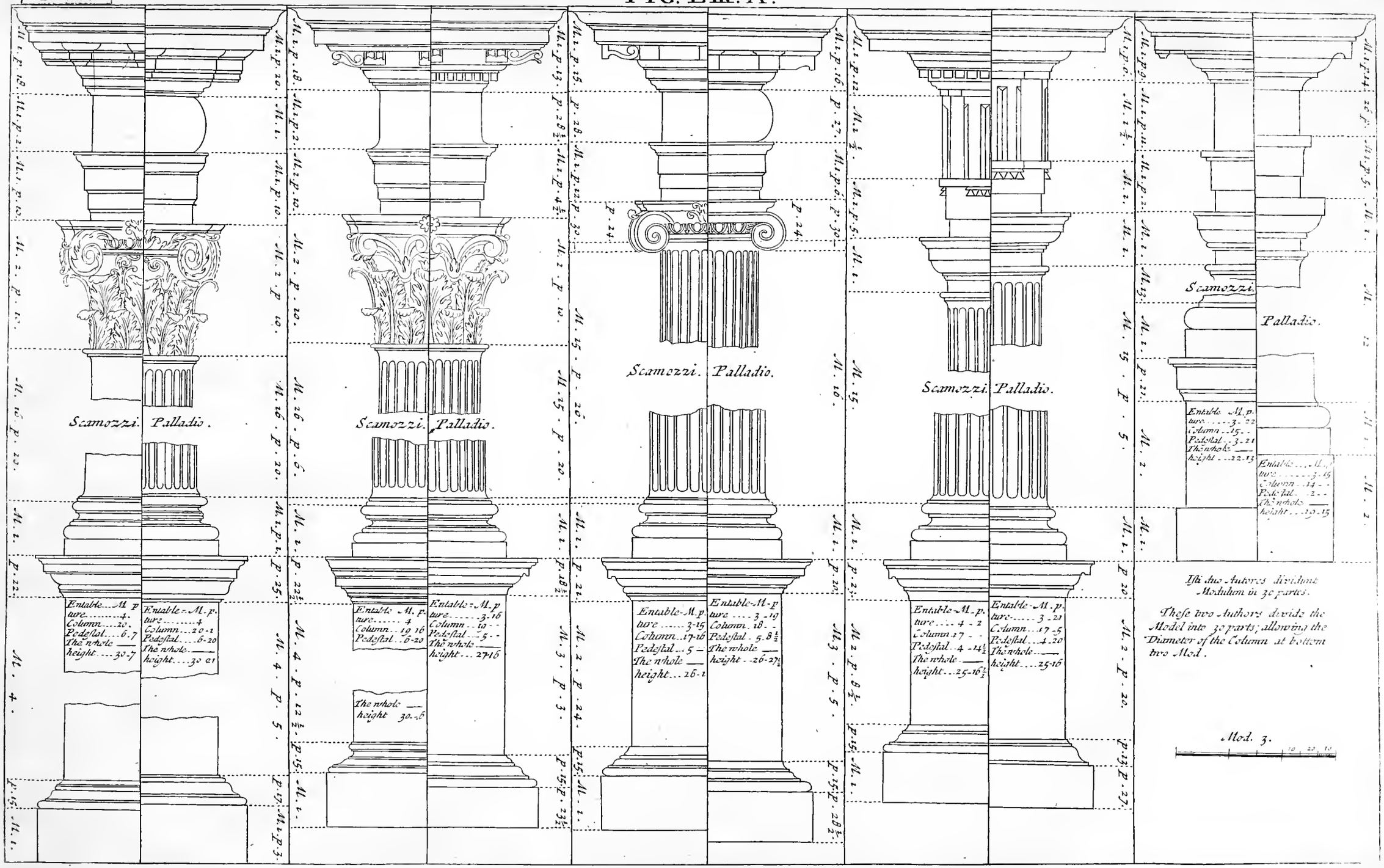
The Fifty-third Figure A.

The Orders of Architecture, taken from Palladio *and* Scamozzi.

BESIDES *Vignola, Palladio* and *Scamozzi* have alſo written excellently well of the Orders of Architecture; and each of 'em have deſervedly their Followers and Admirers. That you might therefore be enabl'd to make Deſigns in Perſpective, after the Proportions of the moſt celebrated Maſters, I have in this Plate given you the Meaſures of all the Orders, as deliver'd by them in their Books.

THE GLASGOW SCHOOL OF ART LIBRARY

FIG. LIII. A.



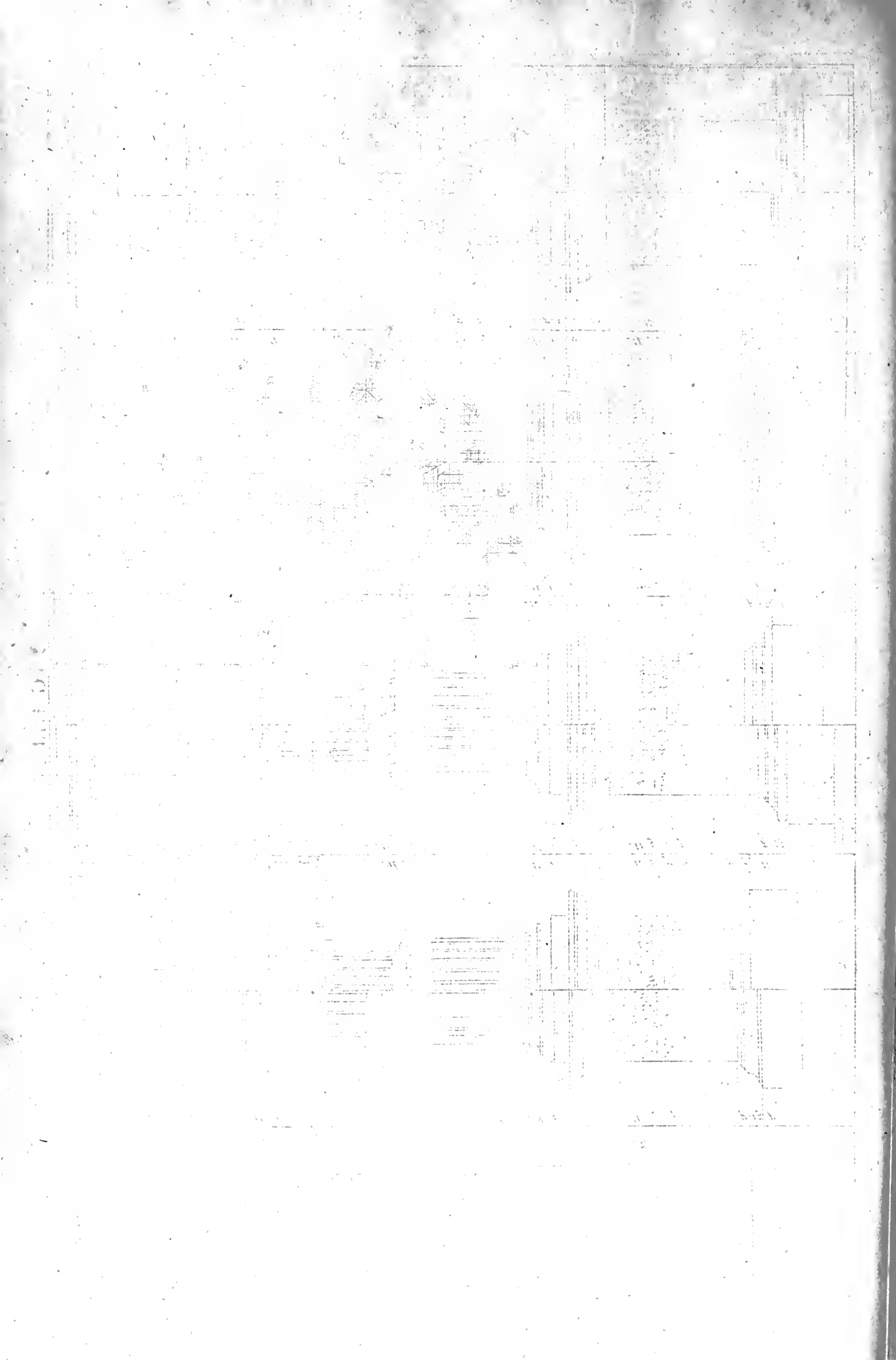


FIG. LIII. B.

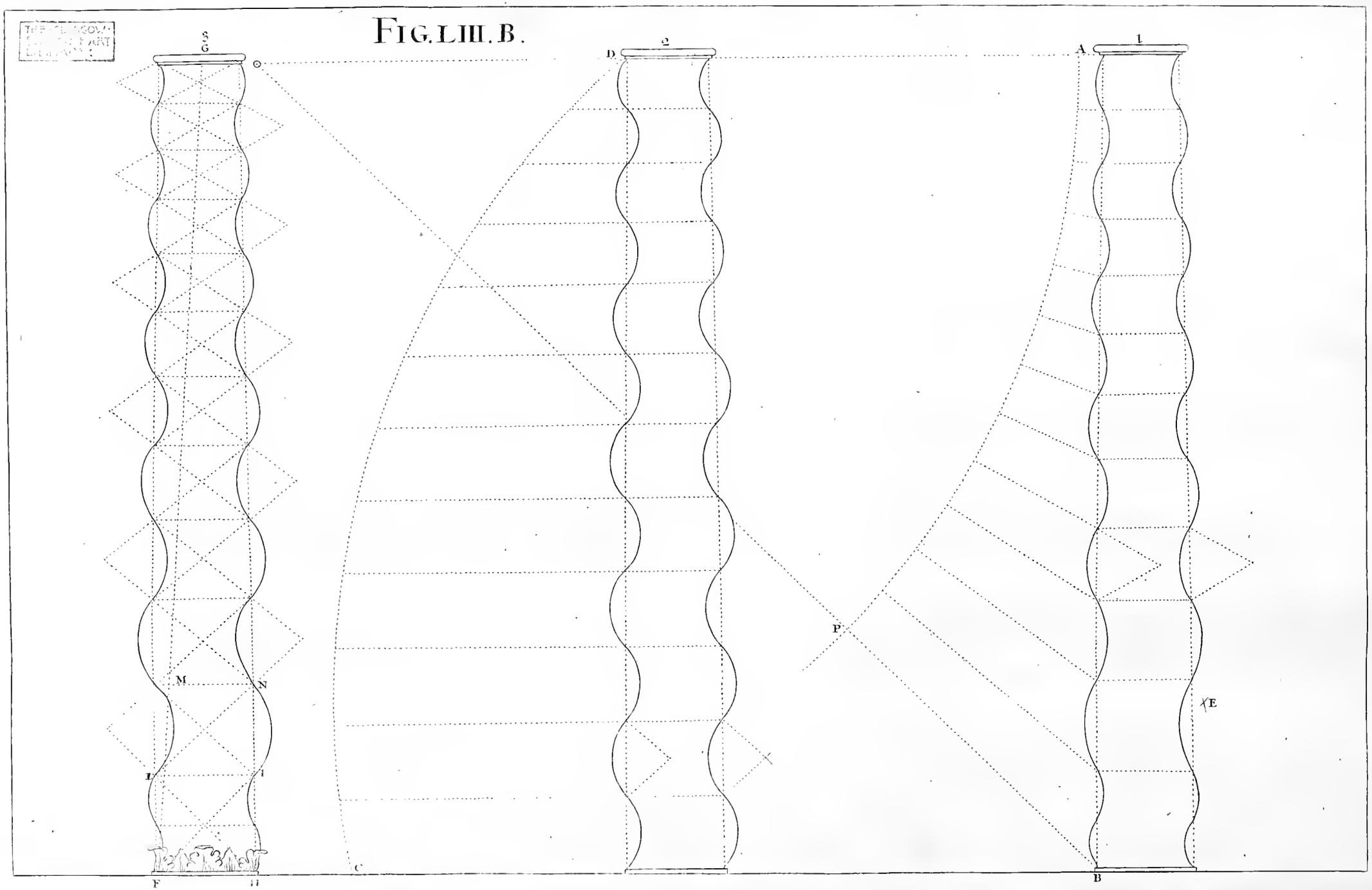


Fig. Quinquageſ. tertia B.

Modus triplex delineandi columnas ſpirales.

COLUMNÆ figuræ ſuperioris carent ea concinnitate, quâ præditæ ſunt columnæ ſpirales æneæ celeberrimi Equitis Bernini ad ſepulchrum S. Petri in Vaticano. Itaque methodum triplicem exhibeo ad minuenda ſpatia totius altitudinis columnæ.

1. *Recta* O A *ſit æqualis altitudini* A B *columnæ. Fiat autem recta* O B, *& arcus* A P *ex centro* O, *diviſus in partes duodecim æquales, ducendo rectas, quæ per puncta diviſionum deſinant in columnam rectam; ac demum fiant parallelæ ad baſim: Spatia inter has parallelas dabunt aperturam circini pro triangulis æquilateris & pro ſpiris, ut oſtendit columna* 1.

2. *Tranſlatâ in* C *tertiâ parte altitudinis columnæ ab ejus imo ſcapo, habeat circinus aperturam* C D; *ac poſito uno ejus crure prius in* D, *poſtea in* C, *fiant duo parvi arcus ad* E: *ſectio illorum arcuum erit centrum arcûs* D C, *quem oportet dividere in duodecim partes æquales, & ex punctis diviſionum ducere parallelas ad baſim. Tum ſpatiis inter parallelas diviſis in quatuor partes æquales, tres ex illis partibus dabunt longitudinem crurum pro triangulis iſoſcelibus; vertices autem triangulorum erunt centra ſingularum ſpirarum, ut oſtendit columna* 2.

3. *Ductâ ex medio ſummitatis* G *rectâ* G F, *ſpatium* H F *transferatur in* I, *& fiat recta* I L *parallela ad baſim* H F; *ſpatium* I L *transferatur in* N, *ac fiat* N M, *& ſic deinceps. In parvis columnis triangula ſine ſenſibili errore duci poſſunt per diagonales: in columnis tamen grandioribus, alterutrum ex modis antea explicatis adhibere neceſſe eſt.*

The Fifty-third Figure B.

Three different Ways of delineating wreath'd Columns.

THE wreath'd Columns deſcrib'd in the Fifty-ſecond Figure, being divided into Twenty-four equal Parts, want very much of that Elegancy of Contour, which is viſible in thoſe braſs Pillars, made by the famous Cavalier *Bernino*, for S. *Peter*'s Sepulcher in the *Vatican*. Wherefore I here lay before you three ſeveral Ways of diminiſhing the Spaces thro' the whole Height of the Column.

1. Make the right Line O A equal to A B the Height of the Column; then draw the Line O B, and on the Center O deſcribe at pleaſure the Arch A P, which divide into twelve equal Parts, and by the Diviſions draw ſtreight Lines from the Center O to the Line of the Column; and laſtly continue the ſame Parallels to the Baſe. The Spaces between theſe Parallels, ſhall be the Sides of equilateral Triangles, wherewith you are to deſcribe the Wreath of the Column, as is ſeen in Column 1.

2. Having ſet the third Part of the Column's Height, from the Bottom of the Shaft to the Point C; with the Interval C D, from the Centers D and C, deſcribe the Parts of Arches interſecting at E. On the Center E, with the ſame Interval, deſcribe the Arch D C, which divide into twelve equal Parts; and from the Points of thoſe Diviſions, draw Parallels to the Baſe. Then dividing each Space between the Parallels into four equal Parts; three of thoſe Parts ſhall be the Sides of the *Iſoſceles* Triangle; whoſe *Vertex* is the Center whereon to deſcribe each Wreath of Column 2.

3. Having drawn from the midſt of the Column's top G, the Line G F, make H I equal to H F, and draw I L parallel to the Baſe H F: Again, make I N equal to I L, and draw N M alſo parallel, and ſo on. In ſmall Pillars, the Centers of the Diagonals of theſe Spaces may, without ſenſible Error, ſerve for deſcribing the Wreaths; but in greater Columns, either of the other two Methods is rather to be choſen.

FIGURA Quinquageſimaquarta.

Veſtigia ædificii Ordinis CORINTHII.

ESCRIPTURI ædificium Corinthium octangulare, ponimus hic veſtigia unius ex quatuor partibus pilarum, quibus imponetur fornix in modum tholi, ut conſtabit in figura quinquageſimaoctava. Ad faciliorem deſcriptionem, in parte inferiori paginæ poſui veſtigium geometricum ſtylobatæ, in ſuperiori veſtigium geometricum coronicis, cum latitudinibus & longitudinibus membrorum ſingulorum; ut eas transferendo in lineam plani more conſueto, utrumque veſtigium opticè deformetur. Ad vitandam confuſionem, prius notare oportebit puncta quæ ſpectant ad membra propinquiora ſolido parieti, deinde alia.

The Fifty-fourth FIGURE.

The Plan of the Deſign of the CORINTHIAN *Order.*

EING to deſcribe an Octangular *Corinthian* Work, I have here inſerted the Plan of one Quarter of the Compoſition; which is vaulted in form of a *Cupola*, as is ſeen in the Fifty-eighth Figure. To render the Plan leſs confus'd, I have, in the lower part of the Plate, given the Geometrical Plan of the Pedeſtal; and in the upper part, that of the Cornice; with the Breadths and Lengths of each Member: ſo that by transferring the ſame into the Ground-line, after the uſual manner, you delineate each Plan in Perſpective. For avoiding Confuſion, 'twill be requiſite firſt, to transfer the Points of thoſe Members that are next the Solidity of the Wall; ann then proceed to others.

Fig. LIV.

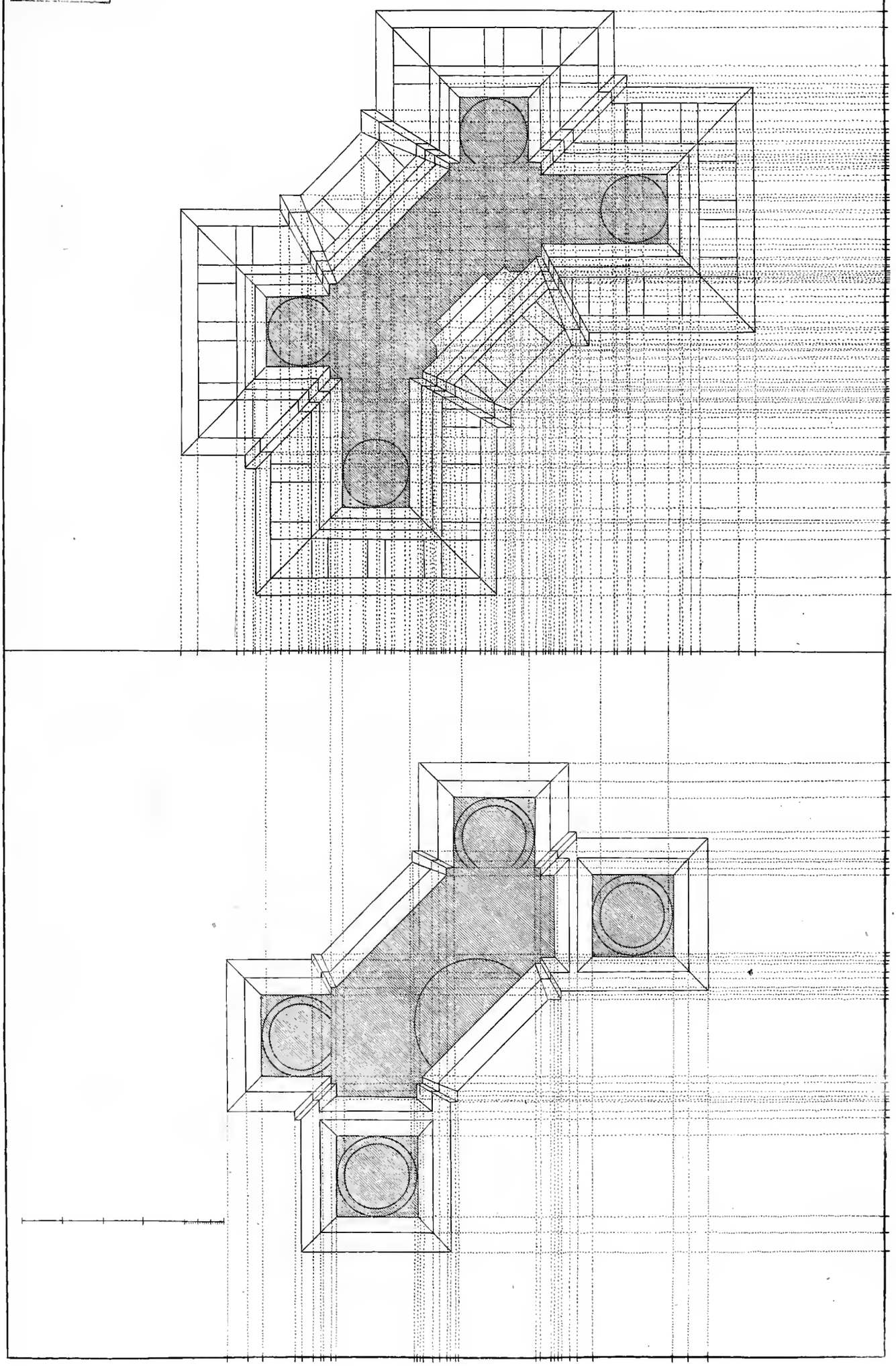
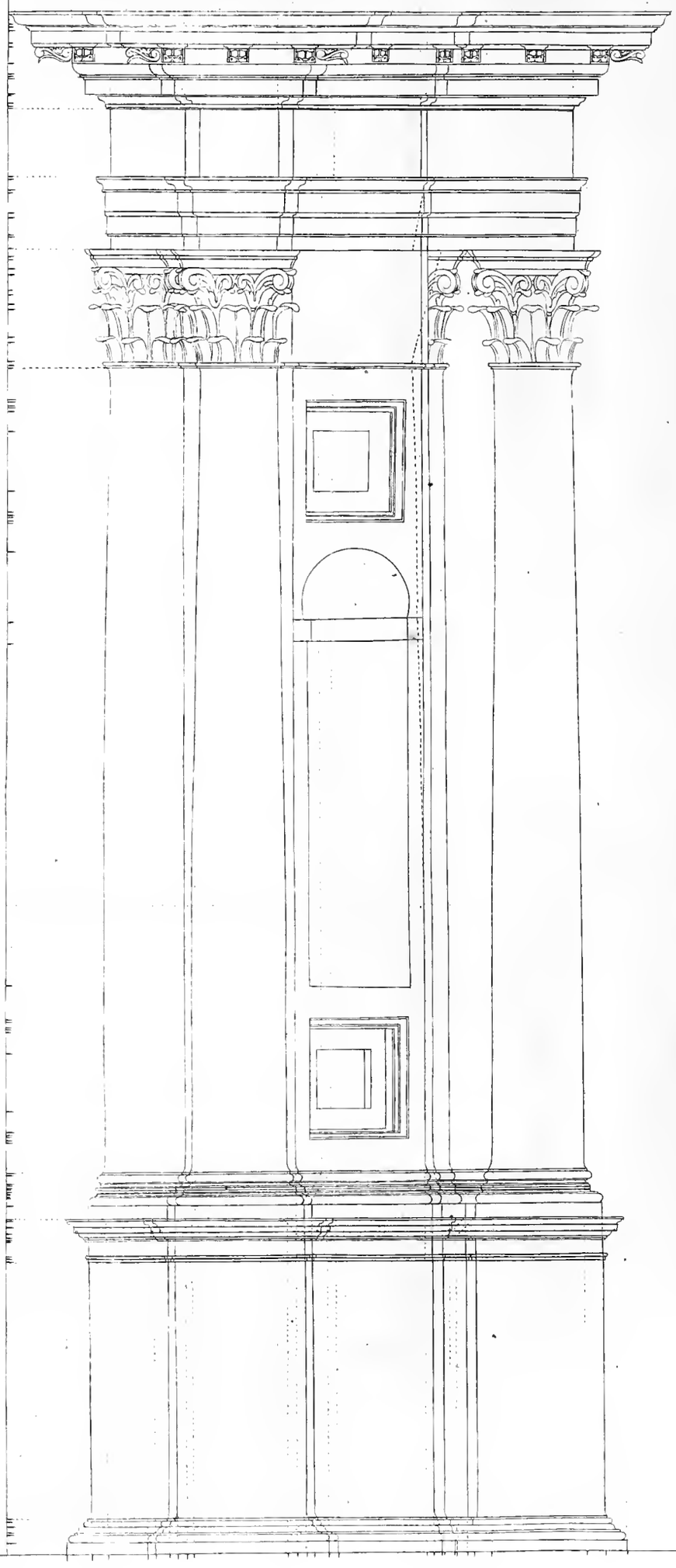


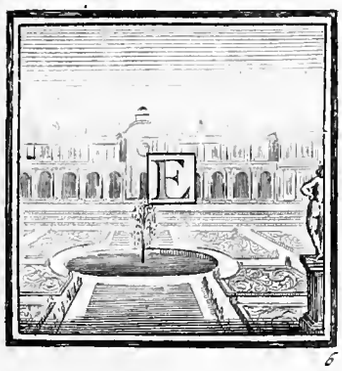
FIG. LV.



THE GLASGOW SCHOOL OF ART LIBRARY

FIGURA Quinquageſimaquinta.

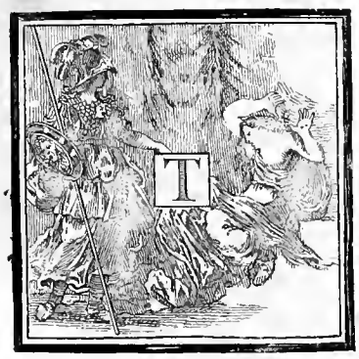
Elevatio ædificii Ordinis CORINTHII.



LEVATIO geometrica ædificii octangularis congruit cum duobus ejus veſtigiis figuræ antecedentis. Quia verò elevatio parietis abſcondit ſecundam ex quatuor columnis, eademque in ædificio deformato conſpicua futura eſt; iccirco eam lineis occultis deſignare oportuit.

The Fifty-fifth FIGURE.

The Geometrical Elevation of a CORINTHIAN *Work.*



THE Geometrical Elevation of this Octangular Deſign, is wholly correſpondent to the two Plans of the foregoing Figure: But becauſe the Wall in this Upright takes off the Sight from the ſecond of the four Columns, which is notwithſtanding viſible in the finiſh'd Perſpective that follows; 'tis requiſite to delineate the ſame with occult Lines, as in the Figure.

FIGURA Quinquageſimaſexta.

Deformatio Veſtigiorum & elevationis ædificii CORINTHII.

IN hac Figurâ, lineam plani coincidere volui cum linea horizontis. Itaque videri non poſſet veſtigium inferius, niſi ut alias deorſum protraxi lineam plani, hic è converſo ſurſum promoviſſem lineam horizontis, quam conſtitui mediam inter lineas plani utriuſque veſtigii, ut ambæ projectiones eſſent æquè diſtinctæ. In elevatione, columna ſecunda, quam, ut dixi, paries abſcondit, lineis occultis deſignanda eſt.

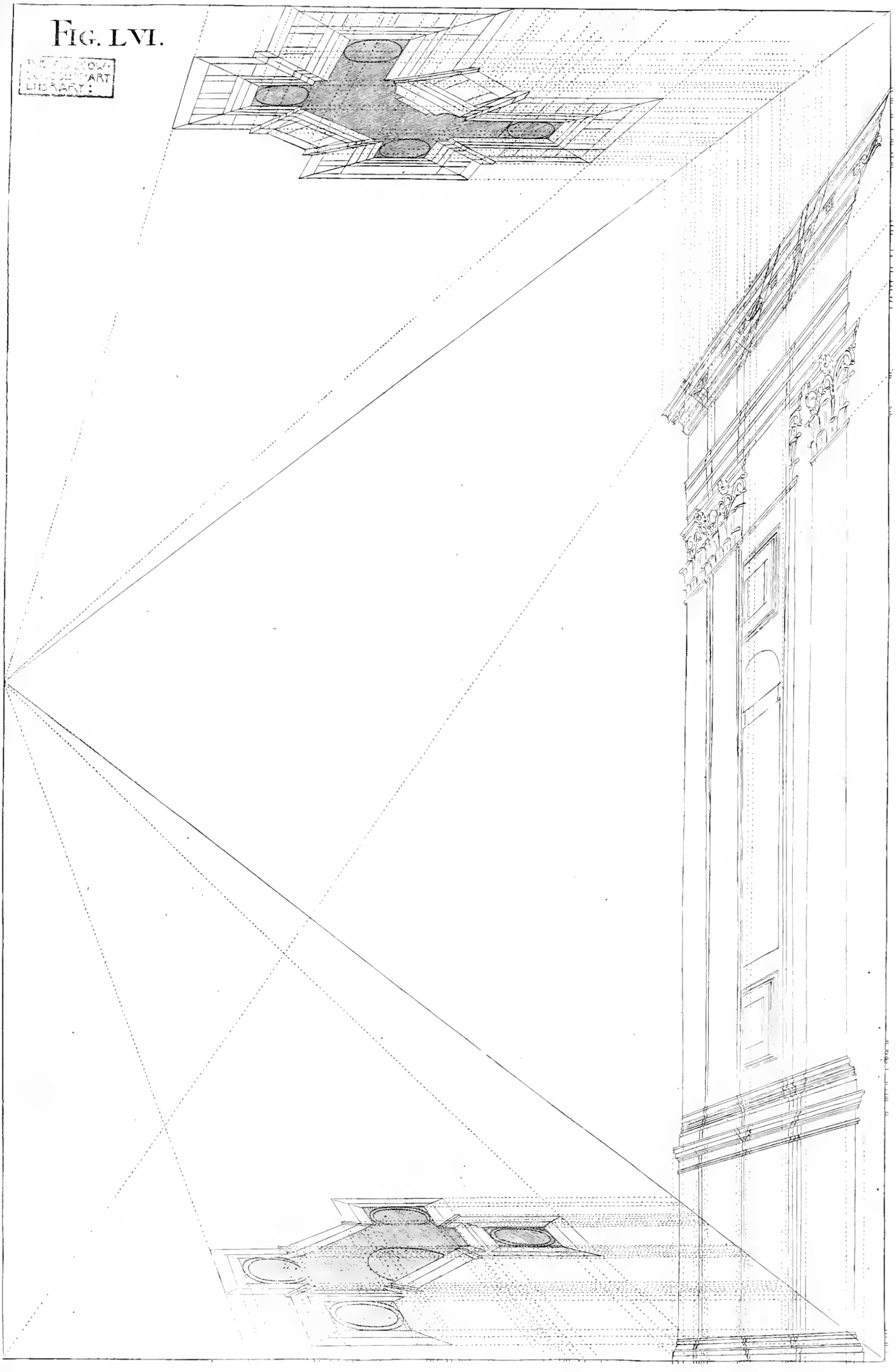
The Fifty-ſixth FIGURE.

The Perſpective Plans and Upright of the CORINTHIAN *Deſign foregoing.*

IN this Figure, I have made the Ground-line coincident with that of the Horizon, in which caſe the lower Plan can't be ſeen, unleſs the Ground-line be ſunk lower, as before intimated; or contrariwiſe, the Point of Sight rais'd higher, as I have here done, keeping it in the midſt between the Ground-lines of the two Plans, that the Perſpective of both might be equally diſtinct. In the Elevation, the ſecond Column, which I mention'd to be hidden by the Wall, ſhould be deſign'd with occult Lines.

Fig. LVI.

THE METROPOLITAN MUSEUM OF ART LIBRARY



THE GLASGOW SCHOOL OF ART LIBRARY

FIG. LVII.

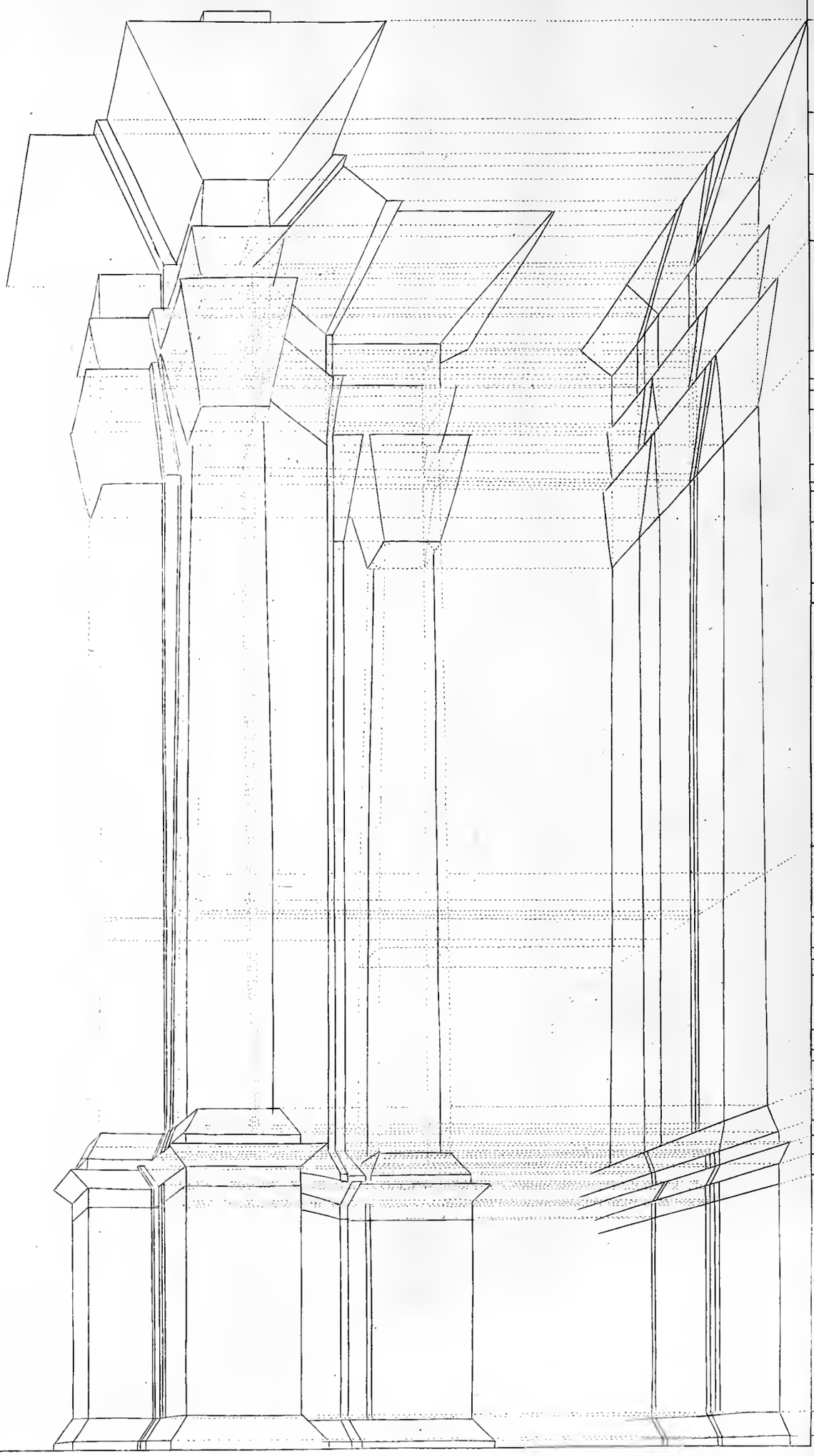
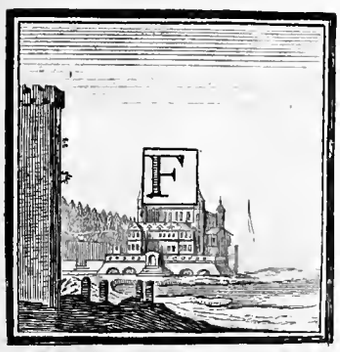


FIGURA Quinquageſimaſeptima.

Adumbratio Figuræ ſequentis.



IGURAM hanc ſeorſim delineavi, ut videas quomodo facienda ſit operis totius adumbratio, accipiendo altitudines membrorum ſingulorum ex elevatione; latitudines & longitudines ex veſtigiis. Quæ omnia ex diagrammatis inſpectione clariſſimè apparent.

The Fifty-ſeventh FIGURE.

The rough Draught of the following Figure.

Have drawn this Figure apart, that you may ſee the Manner of deſcribing the Out-line of the whole Work, by taking the Heights of the ſeveral Members from the Elevation, and their Breadths and Lengths from the Plans; all which is very plain, upon Inſpection of the Figure.

FIGURA Quinquageſimaoctava.

Ædificium Ordinis CORINTHII *Octangulare.*

UCUSQUE deſcripſimus pilas anticas ſiniſtras ædificii Corinthii. En hoc loco medietatem dexteram totius Operis. Integrum verò ædificium habebis figurâ ſexageſimâ.

The Fifty-eighth FIGURE.

Part of an Octangular *Work of the* CORINTHIAN *Order.*

HITHERTO the neareſt Left-hand Quarter of this *Corinthian* Deſign has been deſcrib'd. In this Plate you have the Right-hand Half of the whole Work; and in the Sixtieth Figure, the entire Perſpective compleat.

FIG. LVIII.

FIG. LIX.

THE GLASGOW SCHOOL OF ART LIBRARY

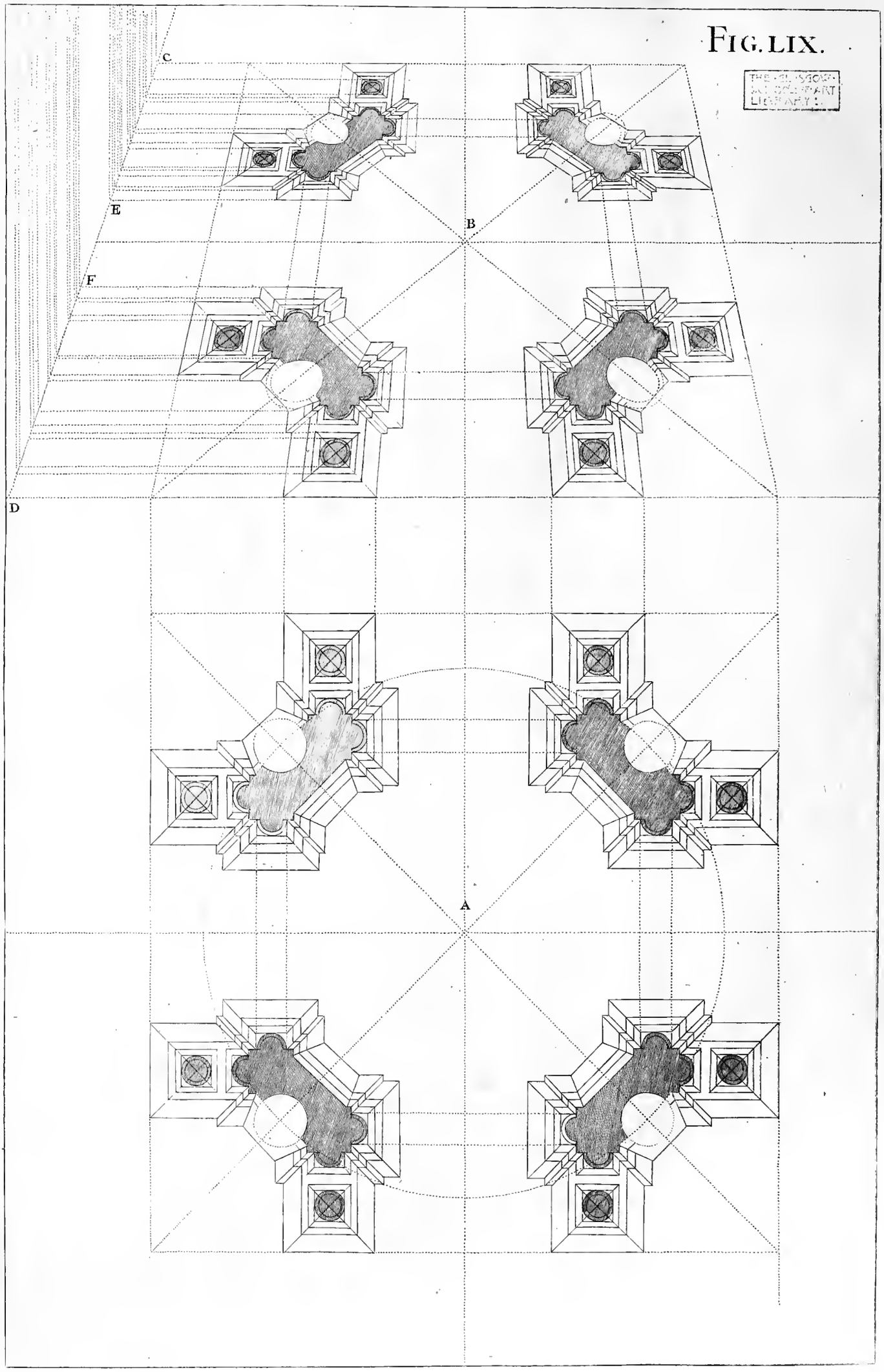


FIGURA Quinquageſimanona.

Veſtigia Tabernaculi octangularis.

ROJECTIONES rerum octangularium ſunt quadratis difficiliores: ideò in eis explicandis diligentiæ non peperci. Moles, cujus veſtigia vides in A *&* B, *convenit in multis cum ea quam ereximus figura quinquageſima-octava. Viſualis* **CD** *recipit ſectiones perpendicularium, quæ deſerviunt pro elevatione figuræ ſequentis, ut ſæpius dictum eſt. Si facies interior delineanda ſit ſeorſim à facie anteriori, illam perficies ope linearum* **CE**, *iſtam ope linearum* **FD**.

The Fifty-ninth FIGURE.

The Plans of an Octangular Tabernacle.

OCTANGULAR Figures being more difficult to be put in Perſpective, than the Square; I ſhall uſe my beſt Endeavours to render the Method as plain as poſſible. The Compoſition whoſe Plans you ſee in A and B, has much Affinity with that deſcrib'd in the Fifty-Eighth Figure. The Viſual CD receives the Sections, from which Perpendiculars are rais'd for the Elevation and Profile of the following Figure, as has been often ſaid. If you would delineate the Back-part ſeparate from the Fore-part, you may do the former by means of the Line CE, and the latter by that of FD.

FIGURA Sexageſima.

Tabernaculum octangulare.

OC tabernaculo aliquoties uſus fui pro expoſitione quadraginta horarum. Si colores ſcitè inducti fuerint in duos ordines telariorum, reſectis omnibus quæ ad molem ipſam non pertinent, ſpectatoribus imponet, & ſolida videbitur. Oportebit autem exemplar externæ faciei eruere ex parte DF *veſtigii & elevationis; exemplar interioris faciei eruere ex parte* EC, *ſervando in omnibus regulas quas hucuſque tradidimus.*

The Sixtieth FIGURE.

An Octangular Tabernacle in Perſpective.

Have ſometimes made uſe of this Tabernacle for the Expoſition of the *Forty Hours*. If the Colours are laid by a skilful Hand, on two Ranges of Cloth, and the Frame cut away according to the Out-line of the Work, they will wonderfully deceive the Eye, and appear as ſolid; but then the outer Range muſt be drawn after the Plan and Elevation of the Part DF in the foregoing Figure; and the inner Range after that of EC; in all things obſerving the Rules hitherto delivered.

A
TREATISE
of the
FIVE ORDERS
of
Columns
in
ARCHITECTURE
viz.
Toscan,
Doric, Ionic,
CORINTHIAN
AND
Composite.
Written in French by
Claude Perrault.
Made English by
JOHN JAMES
of Greenwich.

Fig. LXI.

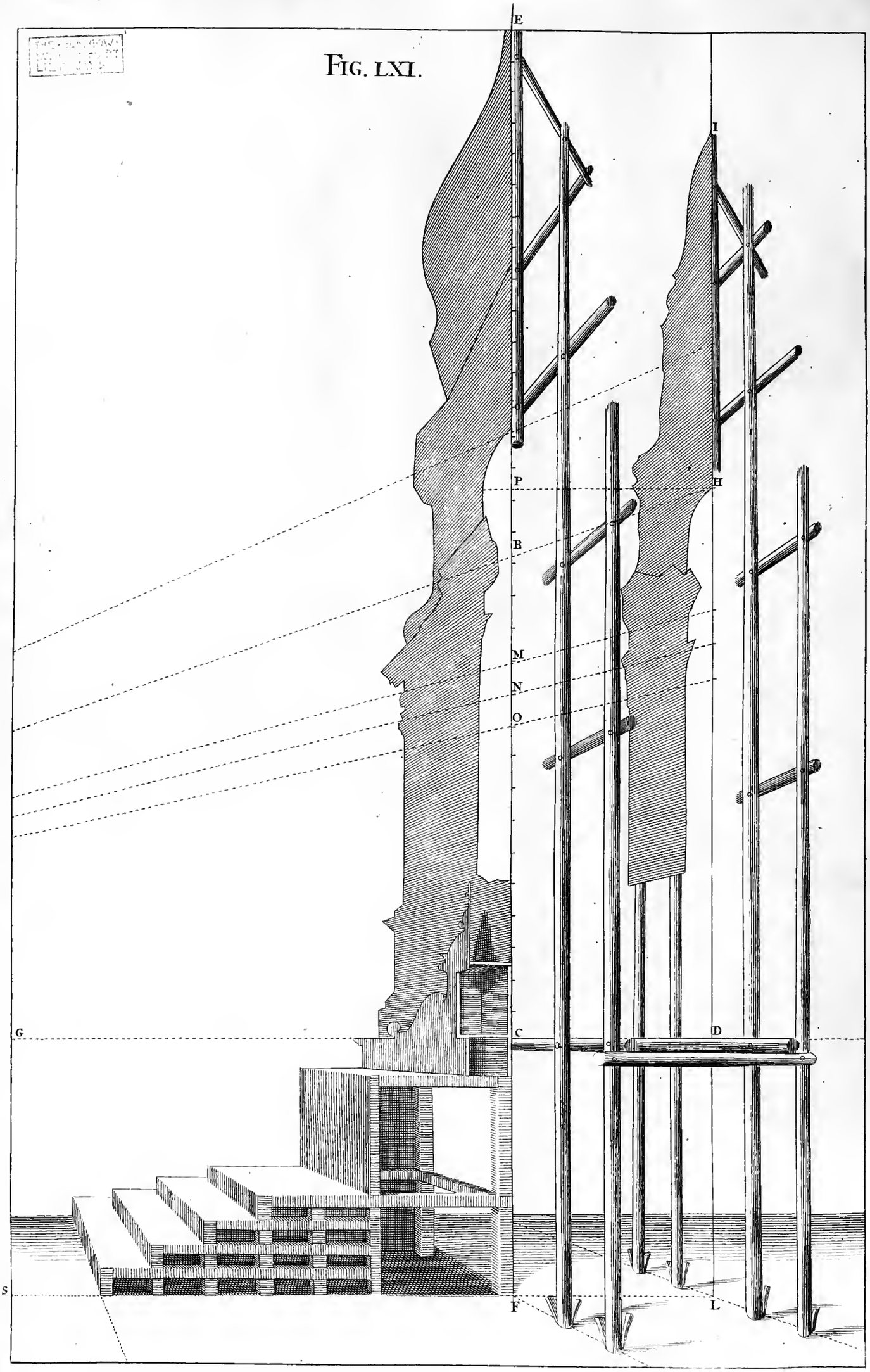


FIGURA Sexageſimaprima.

Modus erigendi machinas, quæ conſtat pluribus ordinibus telariorum.

X figuræ inſpectione addiſces modum erigendi machinas quæ conſtat pluribus ordinibus telariorum. Tabernaculum hoc noſtrum indiget duobus tantum ordinibus ; nam telaria propinquiora oculo exprimunt faciem externam, remotiora exhibent faciem internam. Ne autem lateant ſtipites quibus telaria ſuſtinentur, medietatem telariorum adumbrare omiſimus. Recta LS *eſt linea plani, recta* DG *eſt linea horizontalis; ac punctum diſtantiæ quod cadit extra paginam in recta* CG *prolongatâ, debet eſſe remotum à puncto* C, *quantum in ſuperiori parte figuræ quinquageſimænonæ, punctum diſtantiæ eſt remotum à puncto oculi. Eadem horizontalis* DG *ſecatur normaliter in* C *à recta* EF, *quæ eſt ſectio externæ faciei tabernaculi, & ex* C *incipiunt diviſiones in partes æquales pro reticulatione anterioris faciei telariorum, ut dicemus figurâ ſexageſimaſecundâ. Recta* IL *quæ eſt ſectio internæ faciei tabernaculi, diſtat ad libitum à recta* EF *cui eſt parallela. Porrò, per diviſiones rectæ* EF (*ut vides in* M, N, O) *ex puncto diſtantiæ ducendæ ſunt viſuales ad rectam* IL *pro reticulatione aliorum telariorum: diſtantia enim* DC *facit ut augere oporteat ea quæ in telariis pinguntur, alioquin juſto minora viderentur. Atque hinc dignoſces, cur arcus qui in telariis anterioribus pertingeret ſolum ad* B, *in poſterioribus elevetur uſque ad* H.

Figura ſequenti proponemus modum delineandi faciem internam telariorum, adhibita reticulatione externæ faciei: ad intelligentiam verò illius methodi, fiat in hac figurâ recta HP *parallela ad* DC, *ac recta* BC *dividatur in totidem partes æquales, in quot partes diviſa fuerit recta* PC.

The Sixty-firſt FIGURE.

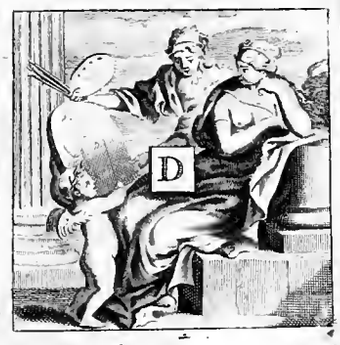
The Manner of erecting Machines, that conſiſt of ſeveral Ranges of Frames.

Y caſting your Eye on the Figure, you'll readily apprehend the Manner of erecting the ſeveral Ranges of Frames. This Tabernacle laſt deſcrib'd needs only two of them ; the Frame next the Eye repreſents the outer Face, and the hinder Frame the inner Face thereof. I have here deſcrib'd but the Half-Breadth of the ſaid Frames, that you might have a Sight of the Poles and Braces which ſupport them. The Line LS is the Line of the Plan, or Ground-line ; the Line DG is that of the Horizon ; and the Point of Diſtance, which falls without the Page CG prolong'd, is as far from the Point C, as the Point of Diſtance is from the Point of Sight in the upper Part of the Fifty-ninth Figure. The Horizontal DG is cut perpendicularly in C by the Line EF, which is the Section of the outer Face of the Tabernacle ; and from the Point C begin the equal Diviſions for the Net-work of the foremoſt Frame, as is ſhewn in the Sixty-ſecond Figure. The Line IL, which is the Section of the inner Face of the Tabernacle, may at pleaſure be ſet nearer or farther from the Line EF, to which it is parallel. By the Diviſions of the Line EF (as M, N, O) Lines are drawn from the Point of Diſtance to the Perpendicular IL, for the Net-work of that Frame ; for the Diſtance DC obliges the Parts of D to be painted larger, otherwiſe they will appear leſs than they really ought. And from hence you may diſcern, why the Arch, which in the foremoſt Frame would reach only to B, does in the hindmoſt riſe up to H.

In the following Figure is ſhewn the Manner of delineating the inner Frame, from the Net-work of the outer Face ; for the better underſtanding of which, make the Line HP in this Figure parallel to DC, and let the Line BC be divided into as many equal Parts, as the Line PC was.

FIGURA Sexageſimaſecunda.

De reticulandis telariis, quæ repræſentent ædificia ſolida.



VO exemplaria tabernaculi quæ ſeorſim delineanda ſunt, conjunctim habes in A. *Utriſque deſervit eadem reticulatio, quam ſuis numeris inſignivimus. Poſtquam ergo deſignaveris amplitudinem totius ædificii, cum proportione ad ipſam reticulabis pavimentum* B *aulæ cujuſpiam quod capiat rem totam, aſcriptis eiſdem numeris quos habet exemplar: ejuſque retis ope, ducentur in pavimento lineæ terminativæ totidem membrorum, quot futura ſunt telaria exprimentia faciem externam tabernaculi. Ubi hæc parata fuerint, ſingula diſponentur exactè ſuis locis in ipſomet pavimento; ac funiculis colore nigro imbutis, repetetur in telariis eadem reticulatio, additis ad libitum pluribus viſualibus; quarum adjumento dum ſeorſim pinguntur telaria, duci queant rectæ tendentes ad punctum oculi ſeu perſpectivæ. Alia quoque reticulatio ſuper pavimento neceſſaria eſt pro internâ facie tabernaculi; ac duæ reticulationes pavimenti eam inter ſe proportionem habebunt, quam habent diviſiones rectarum* IL, EF, *figuræ ſexageſimæprimæ. Hujus retis ductu fient lineæ terminativæ telariorum cum reliquis, ut jam indicavimus.*

Juxta hanc methodum nequeunt duci lineæ terminativæ interioris faciei, niſi fiat in pavimento aliud rete deleto priori, quod eſſet valde laborioſum. Poſtquam ergo ex veſtigio figuræ quinquageſimænonæ eruta ſint duo exemplaria, in exemplar faciei externæ transferatur recta PC *figuræ ſexageſimæprimæ, in exemplar faciei internæ transferatur recta* BC. *Si autem recta* PC *diviſa fuerit in quindecim partes æquales, dividetur* BC *in quindecim partes æquales, atque ope harum diviſionum reticulare oportebit utrumque exemplar. Porrò licet quadrata in reti exemplaris faciei externæ ſint majora quadratis exemplaris internæ faciei, nihilominus idem rete pavimenti deſerviet pro ducendis lineis terminativis utriuſque faciei. Quæ dicta ſunt de duobus exemplaribus, valent de aliis quotcunque. Exempli gratiâ; ſi conſtruere placeat quinque ordines telariorum, fient quinque exemplaria in papyro. Si in omnibus exemplaribus uſurpetur eadem reticulatio, in pavimento facere oportet quinque diverſas reticulationes. Si autem in exemplaribus fiant quinque diverſæ reticulationes, in pavimento ſufficit una reticulatio.*

Curandum eſt ut ſingula retis quadrata in telariis ſint exacta, omneſque illorum anguli ſint recti. Modus expeditiſſimus faciendi angulos rectos eſt hujuſmodi. Poſito uno crure circini in puncto F *lineæ rectæ* EF, *alioque crure poſito ubilibet in* O, *fiet circulus* GFI, *& ex puncto* G *diameter* GI. *Si recta* HF *tranſeat per puncta* I *&* F, *eſt normalis ad* EF.

The Sixty-ſecond FIGURE.

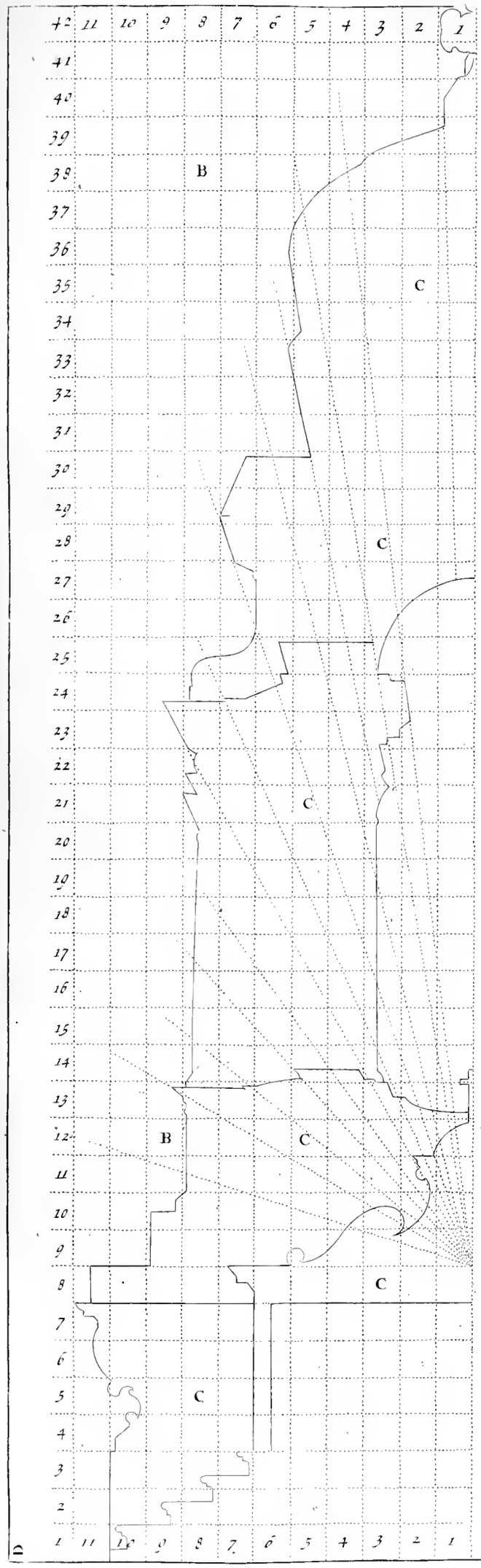
Of making the Net-work on Frames, for repreſenting the Architecture as ſolid.

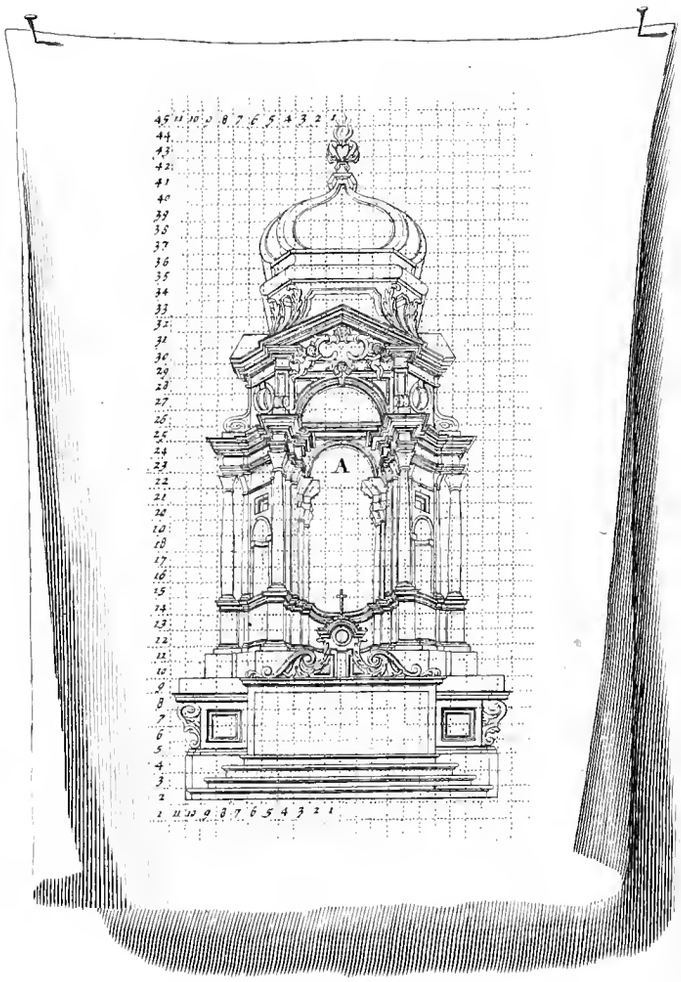
YOU have jointly in A, the two Deſigns of a Tabernacle, which are to be drawn ſeparately; the ſame Net-work ſerving for both, which is alſo mark'd with Numbers. When you have therefore reſolv'd on the Size of your Work, on the Pavement of ſome Room capacious enough, make a Net-work anſwerable, and affix thereto the Numbers, as in your Copy: By the Help of which, you may on the Pavement deſcribe the Out-lines of all thoſe Members that are requiſite to the outer Frame of the Tabernacle. This being done, let the Frame be laid exactly in its place on the ſaid Pavement, and with a black Line ſtrike thereon the ſame Net-work; adding as many Viſual Lines as you pleaſe, which will be of Uſe for drawing Lines to the Point of Sight, when you come to paint the Frames aſunder. Another Net-work on the Pavement is alſo neceſſary for the inner Face of the Tabernacle, which ſhould bear ſuch Proportion to this, as the Diviſions of the Line IL do to thoſe of EF in the Sixty-firſt Figure; and by this means the Out-lines of the inner Frame, *&c.* may be drawn, as has been ſhewn already.

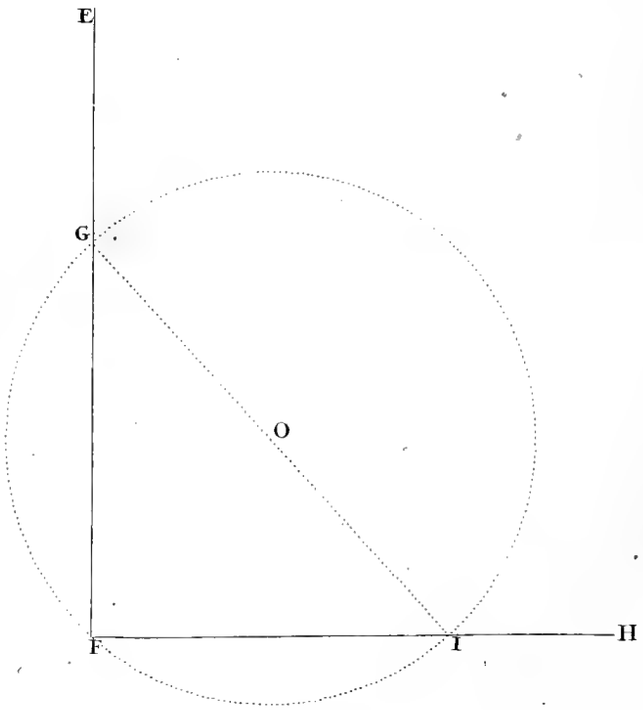
Thus the Out-lines of the inner Face can't be deſcrib'd, without rubbing out the firſt Net-work, and making a ſecond on the Pavement; which wou'd be very troubleſome. Wherefore, from the Plan of the Fifty-ninth Figure, take the two Deſigns, and transfer the Line PC of the Sixty-firſt Figure on the outer Face, and the Line BC on the inner Face. Then if PC were divided into fifteen equal Parts, BC ſhall be divided in the ſame manner, and by theſe Diviſions make the Net-work on each Deſign. And altho' the Squares of the outer Face be larger than thoſe of the inner one, the ſame Net-work may nevertheleſs ſerve for giving the Out-lines of both. What has been ſaid of theſe two Deſigns may be underſtood of many. For Inſtance, if five Ranges of Frames were requir'd, five Deſigns muſt be made in Paper. If in all the Deſigns the ſame Net-work be us'd, then five ſeveral Net-works muſt be made on the Pavement; but if the Deſigns have five different, then one Net-work on the Pavement will ſuffice.

You muſt be very careful that all the Squares of the Net-work be exactly divided, and at right Angles. The ready way of making a right Angle is thus: Placing one Foot of the Compaſſes in the Point F of the Line EF, and the other at pleaſure in O, deſcribe the Circle GFI; and from the Point G draw the Diameter GI. The Line FH drawn by the Points FI, ſhall be perpendicular to FE.

Fig. LXII.







THE CHICAGO SCHOOL OF FINE ARTS LIBRARY

FIG. LXIII.

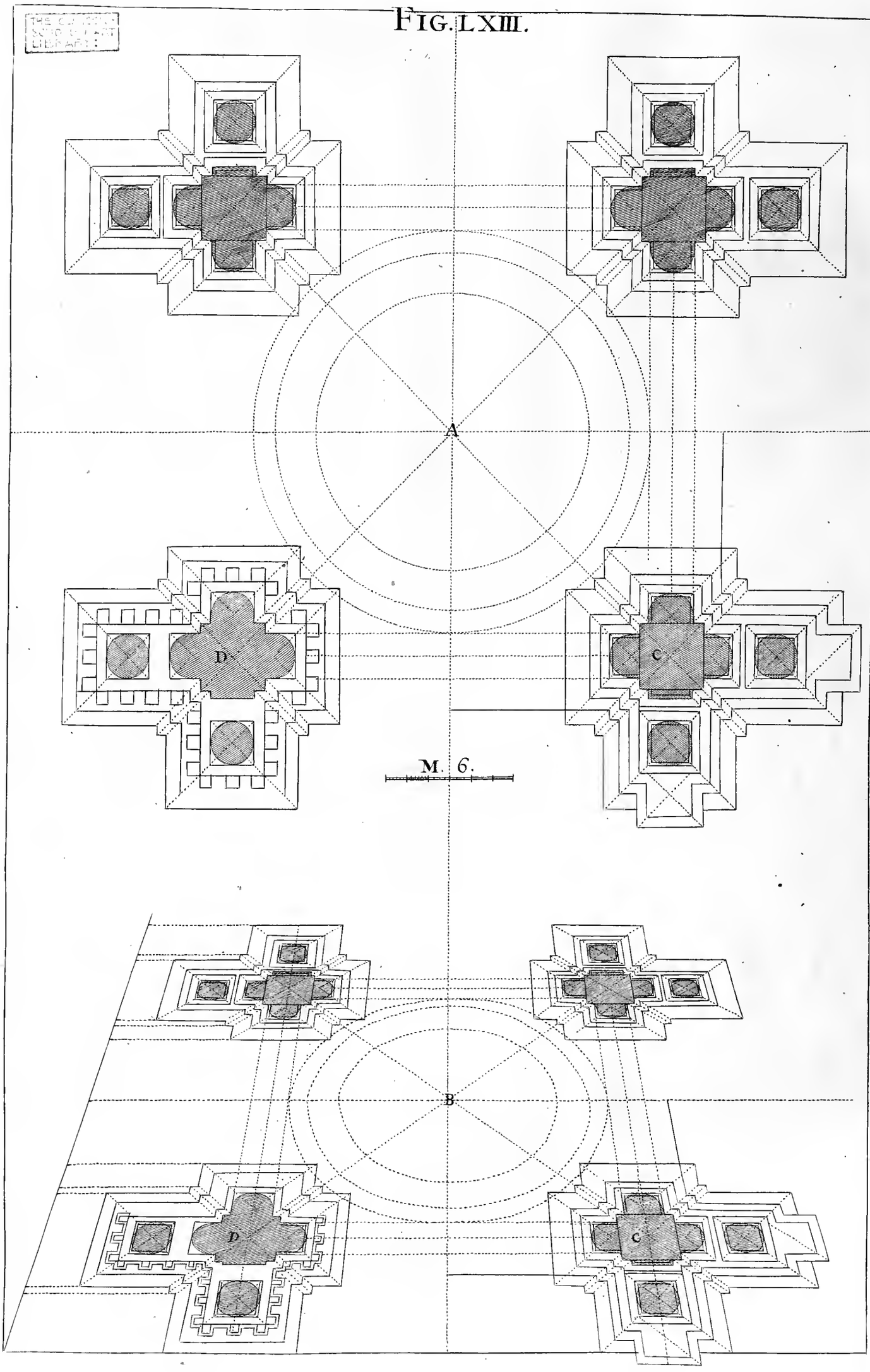
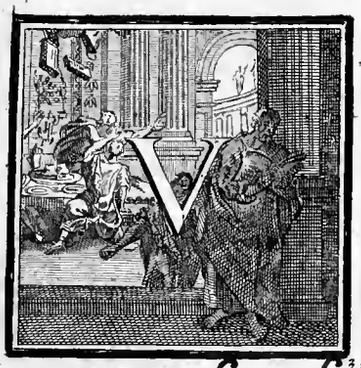


FIGURA Sexageſimatertia.

Veſtigia ædificii *quadrati.*



VESTIGIUM geometricum A *hujus ædificii habet in* B *ſuam deformationem. Diſcrimen inter pilas* C *&* D *oritur ex eo, quòd in* C *poſita ſint veſtigia ſtylobatarum, in* D *autem poſita ſint veſtigia coronicum.*

The Sixty-third FIGURE.

The Plan of a Square *Deſign.*

THE Geometrical Plan of this Deſign A, is brought into Perſpective in B. The Difference between the Parts C and D ariſes from hence, that the Plan of the Pedeſtals is plac'd in C, and that of the Cornice in D.

FIGURA Sexageſimaquarta.

Ædificium *quadratum.*

X deformatione veſtigii & elevationis, methodo conſuetâ eruitur imago totius ædificii, quæ poteſt eſſe exemplar aræ maximæ alicujus Eccleſiæ. Hanc machinam, non ſine communi approbatione, aliquoties adhibui, in apparatu quadraginta horarum; locum in medio vacuum occupantibus Angelis cum nubibus, additâ figurarum aliquot copiâ in parte inferiori. Modus faciendi in telariis remotioribus ab oculo partem tholi rotundi quam hic vides, deducitur ex iis quæ tradidimus in projectione circulorum.

The Sixty-fourth FIGURE.

A Square *Deſign in Perſpective.*

FROM the Plan and Upright in Perſpective, this finiſh'd Piece of the whole Work is delineated after the uſual Manner, and may ſerve for the Deſign of a great Altar in a Church. I have ſometimes, for the Solemnity of the *Forty Hours*, expos'd this painted on a Machine, with an univerſal Satisfaction; Angels with Clouds poſſeſſing the higher part of the Heniſphere within, and Groups of Figures the lower part. The Manner of deſigning on the inner Frame, that part of the ſaid *Cupola* which you here ſee, is deduc'd from what has been before ſaid of putting Circles into Perſpective.

FIG. LXIV.

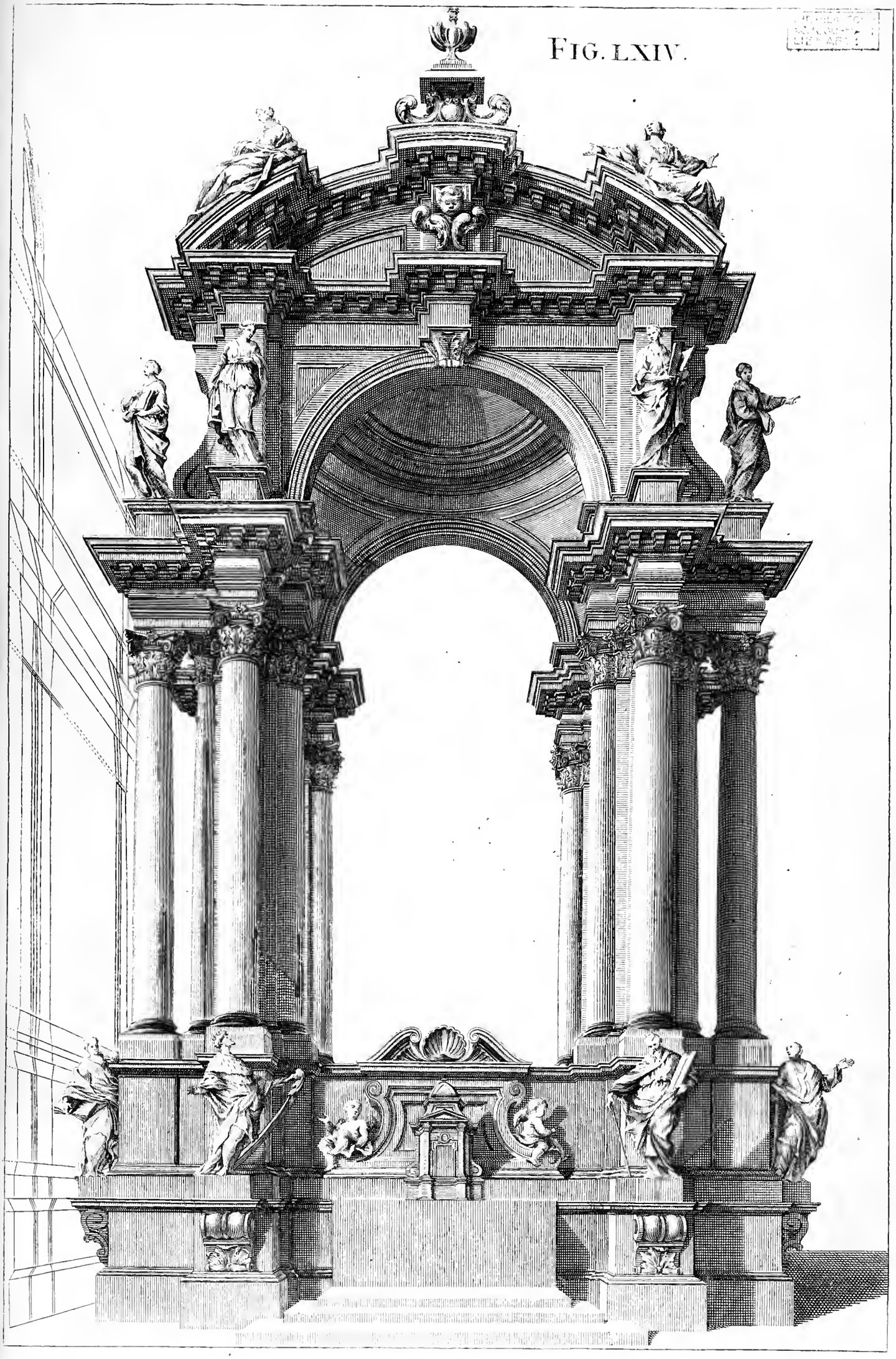
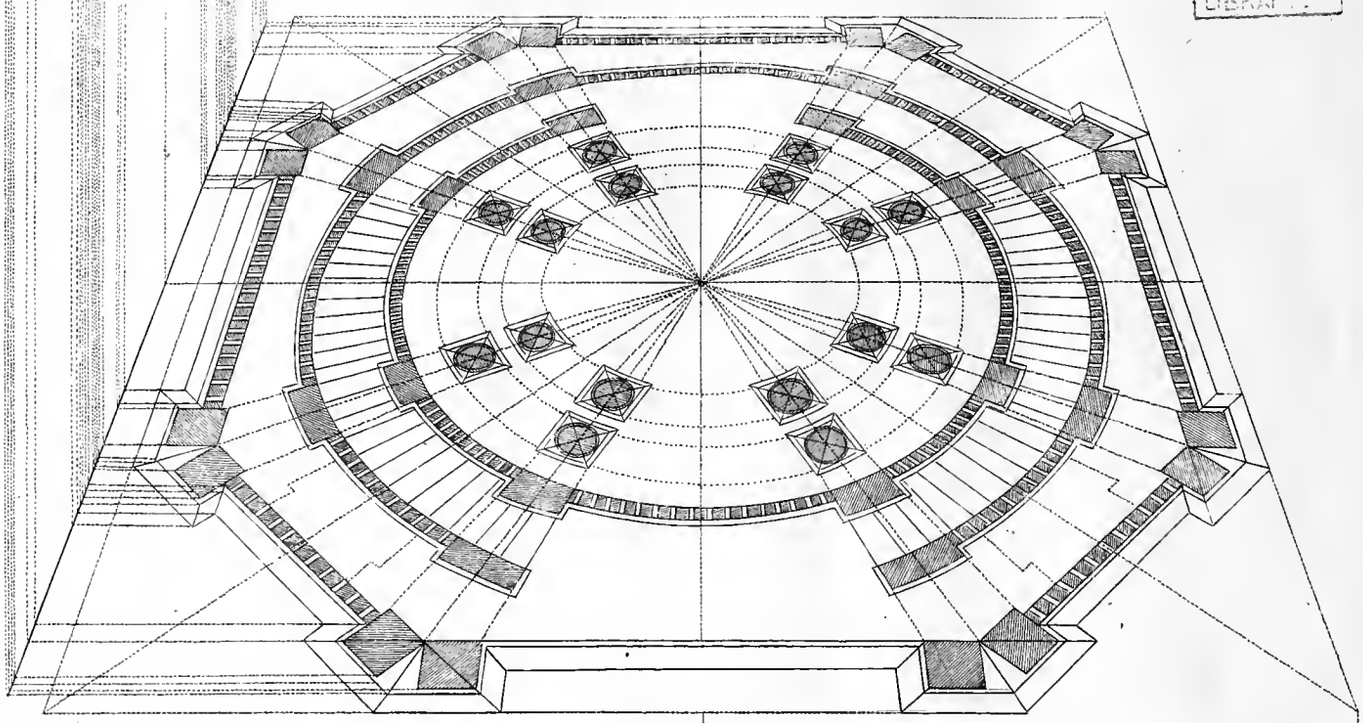


FIG. LXV.

THE GLASGOW SCHOOL OF ART LIBRARY



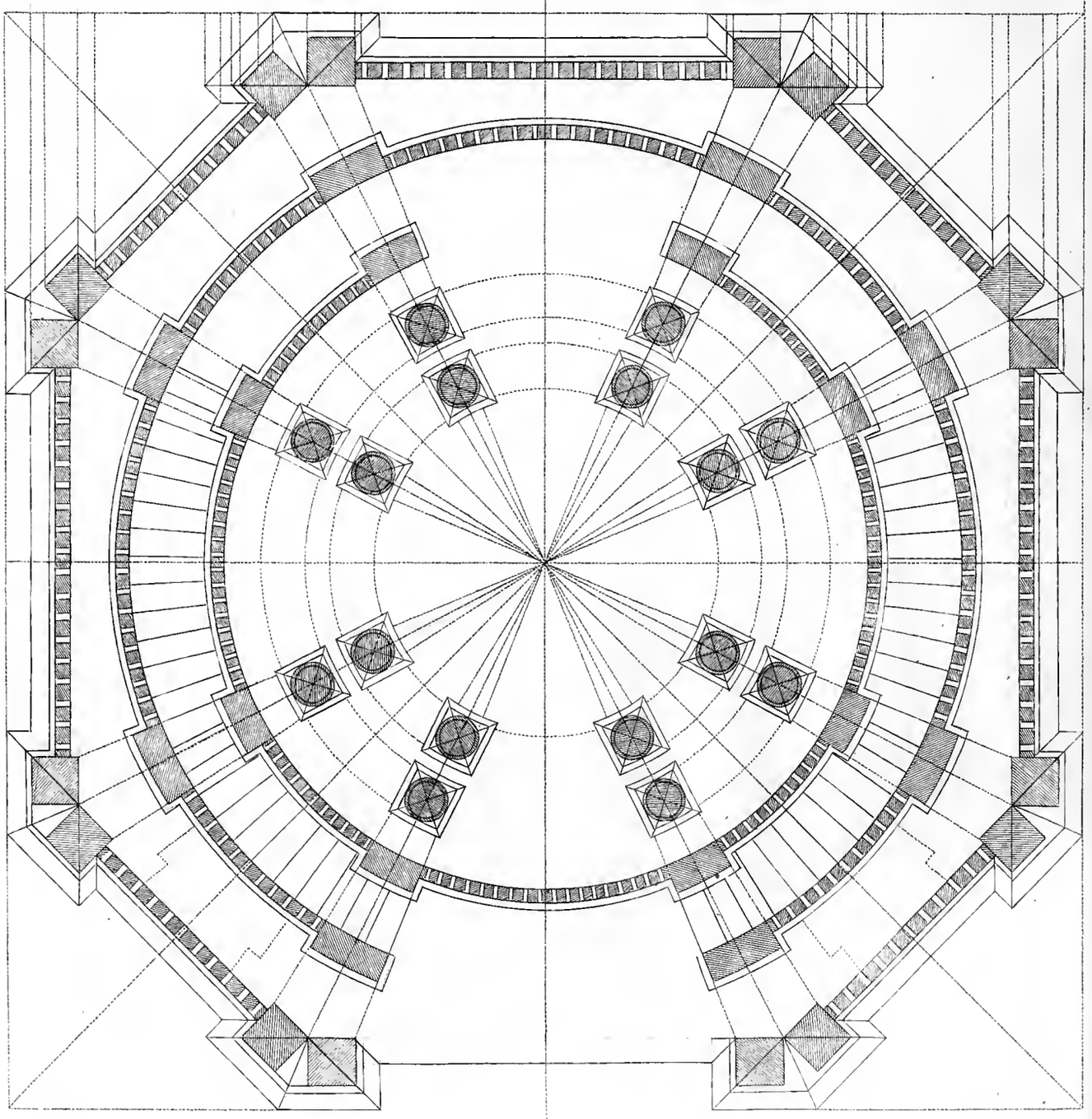


FIGURA Sexageſimaquinta.

Veſtigium ædificii *rotundi* optice imminutum.

QUI ſedulam operam in circulis deformandis non poſuerint, eoſque minimo negotio ex uſu deſcribere nequiverint, fruſtra conabuntur projicere veſtigia ædificiorum rotundorum. Ad vitandam confuſionem, proderit in veſtigio notare primùm lineas occultas membrorum præcipuorum; iiſque tranſlatis in elevationem, addere ſenſim reliquas. Hac induſtriâ ego ipſe in hoc ſchemate uſus ſum. Quum autem experimento didicerim ſummam arduitatem harum deſcriptionum, aliam regulam adhibere jamdiu cœpi, quam, ut ſupra diximus, in aliud Opus reſervamus.

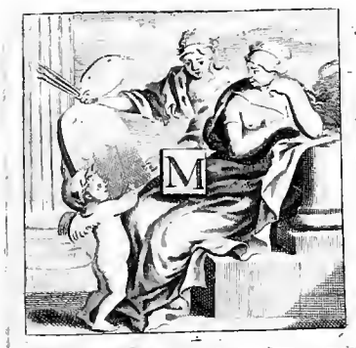
The Sixty-fifth FIGURE.

The Plan of a Circular *Work in Perſpective.*

THEY that have not diligently apply'd themſelves to the putting Circles into Perſpective, and, by a conſtant Practice, render'd the Work familiar to them, will in vain attempt that of the Plans of round Buildings. To prevent Confuſion, you'll do well, firſt to mark the occult Lines of the principal Members; and after thoſe are transferr'd into the Upright, then proceed to the reſt, as I my ſelf did in this Figure. But having found by Experience, the great Difficulty of deſcribing theſe round things, I have long ſince made uſe of another Method, which, as I ſaid before, is reſerv'd for another Volume.

FIGURA Sexageſimaſexta.

Projectio ædificii *rotundi.*



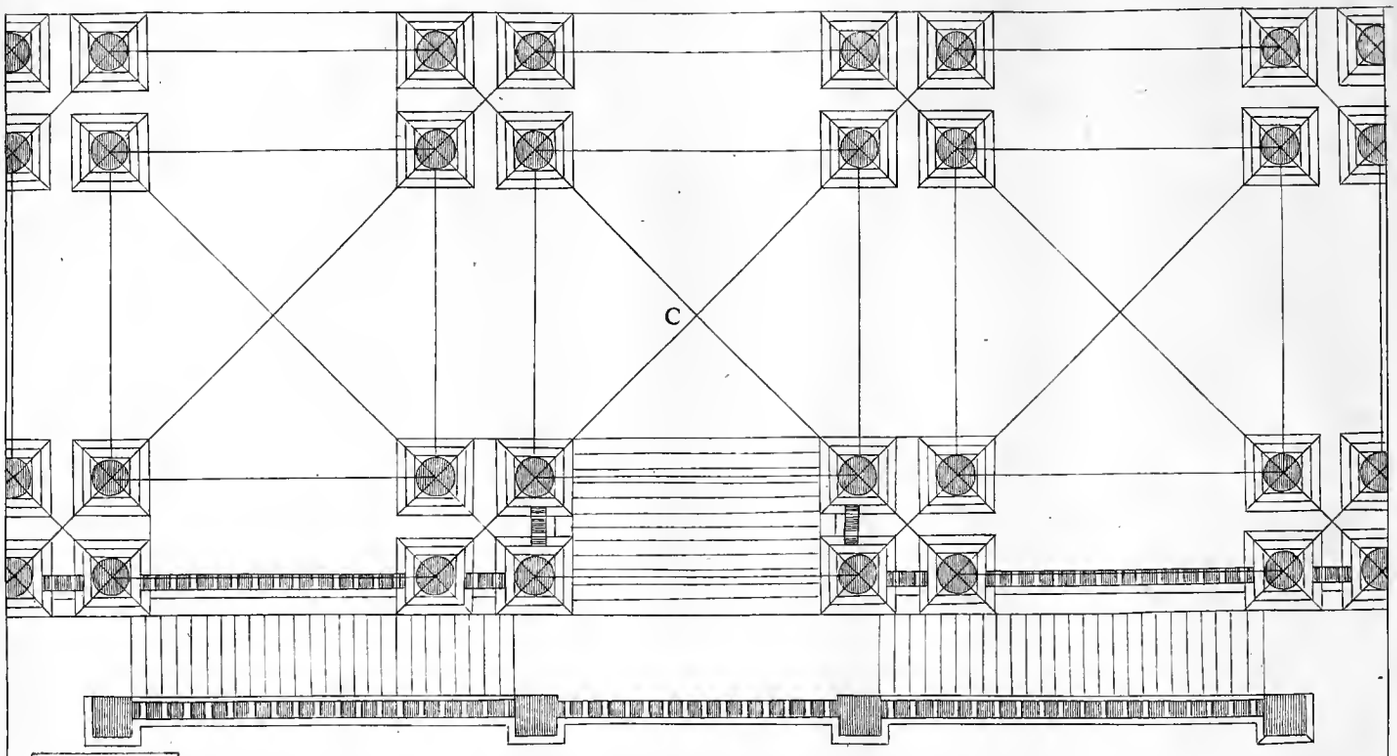
IRIFICE oculis imponunt imagines rerum rotundarum, ſi omnibus reſectis quæ ad eas non pertinent, exactè delineatæ ac depictæ fuerint. Hanc figuram ex veſtigio eruere oportebit methodo conſuetâ, eamque in Templo S. Ignatii *Collegii Romani conſtruxi, pro feria V. & VI. Hebdomadæ ſanctioris. Intra arcum, ſuper altari, locus erat urnæ ſepulchrali, cum Venerabili Sacramento. Sub altari viſebatur ſimulacrum Chriſti Domini è Cruce depoſiti : in medio columnarum, imago Beatæ Virginis dolentis ; ſuper balauſtiis Angeli lugentes, cum inſtrumentis cruciatuum Salvatoris.*

The Sixty-ſixth FIGURE.

A Circular *Deſign in Perſpective.*

THE Appearance of round things, if well deſign'd, maſterly painted, and the Frame cut away to the Out-line of the Work, do wonderfully deceive the Eye. This Figure is drawn from the Plan, as uſually ; and was put in execution by me, in the Church of S. *Ignatius* of the *Roman* College, for the *Thurſday* and *Friday* of the Holy Week. Within the Arch, on the Altar, was plac'd a ſepulchral Urn containing the Holy Sacrament. Beneath the Altar was laid a Figure of our Saviour Chriſt taken down from the Croſs. In the midſt of the Tambour, was a Picture of the Bleſſed Virgin in extreme Sorrow ; and on the Baluſtrade, Angels mourning, bearing the Inſtruments of the Paſſion.

FIG. LXVI.



THE GLASGOW
SCHOOL OF ART
LIBRARY

FIG. LXVII.

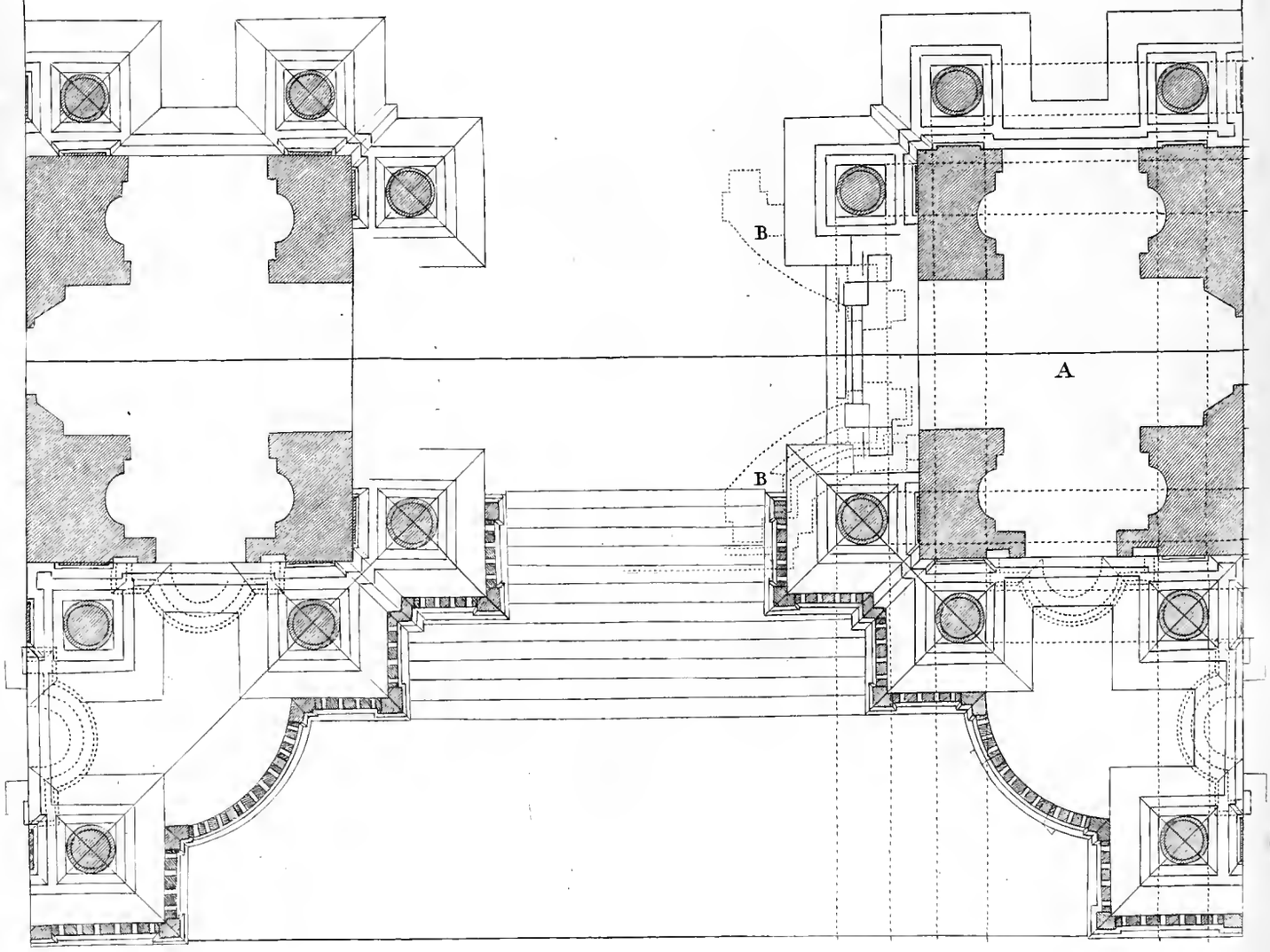


FIGURA Sexageſimaſeptima.

Veſtigium geometricum, ac prima præparatio ad figuram ſeptuageſimamprimam.

GREGIAM adeò ſpeciem præſetulit, atque oculis adeò impoſuit machina quam conſtruxi anno 1685, *pro ſupplicatione quadraginta horarum, in Templo Urbis Farneſiano, ut decreverim ſatisfacere Studioſis, publici juris faciendo non modò imaginem totius ædificii, ſed etiam illius veſtigia & elevationes: quæ omnia eâ diligentiâ delineavimus, veluti Opus ipſum non penicillo colorandum, ſed lapidibus extruendum fuiſſet. Spatia nigrantia ſoliditatem deſignant parietum & columnarum. Cæteræ lineæ ſunt crepidines ſtylobatarum & coronicum. Initium delineationis fiet ab iis membris, ex quibus oriuntur lineæ occultæ poſitæ in* A, (*quæ autem dicuntur de hac medietate, intelligi debent de alia*) *ne multitudo linearum confuſionem pariat. In* B *lineæ curvæ occultæ ſunt veſtigium tholi qui complet ſummitatem ædificii. Veſtigium* C *exhibet ambulacrum interius. Omiſimus autem veſtigium theatri, quia paginæ anguſtia illud non capit.*

The Sixty-ſeventh FIGURE.

The Geometrical Plan, and firſt Preparation to the Seventy-firſt Figure.

THE Machine which I erected in the Year 1685, in the Church of *Farneze*, or *Jeſuits* Church at *Rome*, for the Devotions of the *Forty Hours*; had ſo admirable an Effect, and ſo pleaſantly deceiv'd the Eye, that I reſolv'd to gratify the Studious, not only with a general View, but with the Plan and Elevation thereof; all which was perform'd with ſuch Exactneſs, that the Work itſelf ſeem'd rather to conſiſt of ſolid Stones, than to be wrought by the Painter's Hand. The hatch'd Part denotes the Solidity of the Walls and Columns. The other ſhews the Breaks and Projectures of the Pedeſtals and Cornices. Leſt many Lines ſhould cauſe Confuſion, begin with thoſe Members, which produce the occult Lines on the Side A; underſtanding the ſame alſo of the other half. In B the occult curv'd Lines are the Plan of the *Cupola* which crowns the Structure. The Plan C is that of the inner Veſtibule, but that of the Theater is here omitted, thro' want of Room in the Page.

FIGURA Sexageſimaoctava.

Elevatio geometrica veſtigii præcedentis, & ſecunda præparatio ad figuram ſeptuageſimamprimam.

IN hoc ſchemate habes elevationem ædificii ſectam in longum, quam figurâ ſeptuageſimâ opticè projiciemus: eiſdemque membris conſtare videbis elevationem deformatam, quibus conſtat elevatio geometrica. Hinc diſces ad excogitandas hujuſmodi machinas, eandem Architecturæ ſcientiam in Pictore neceſſariam eſſe, quæ ad conſtruenda ſolida ædificia exigitur in Architecto.

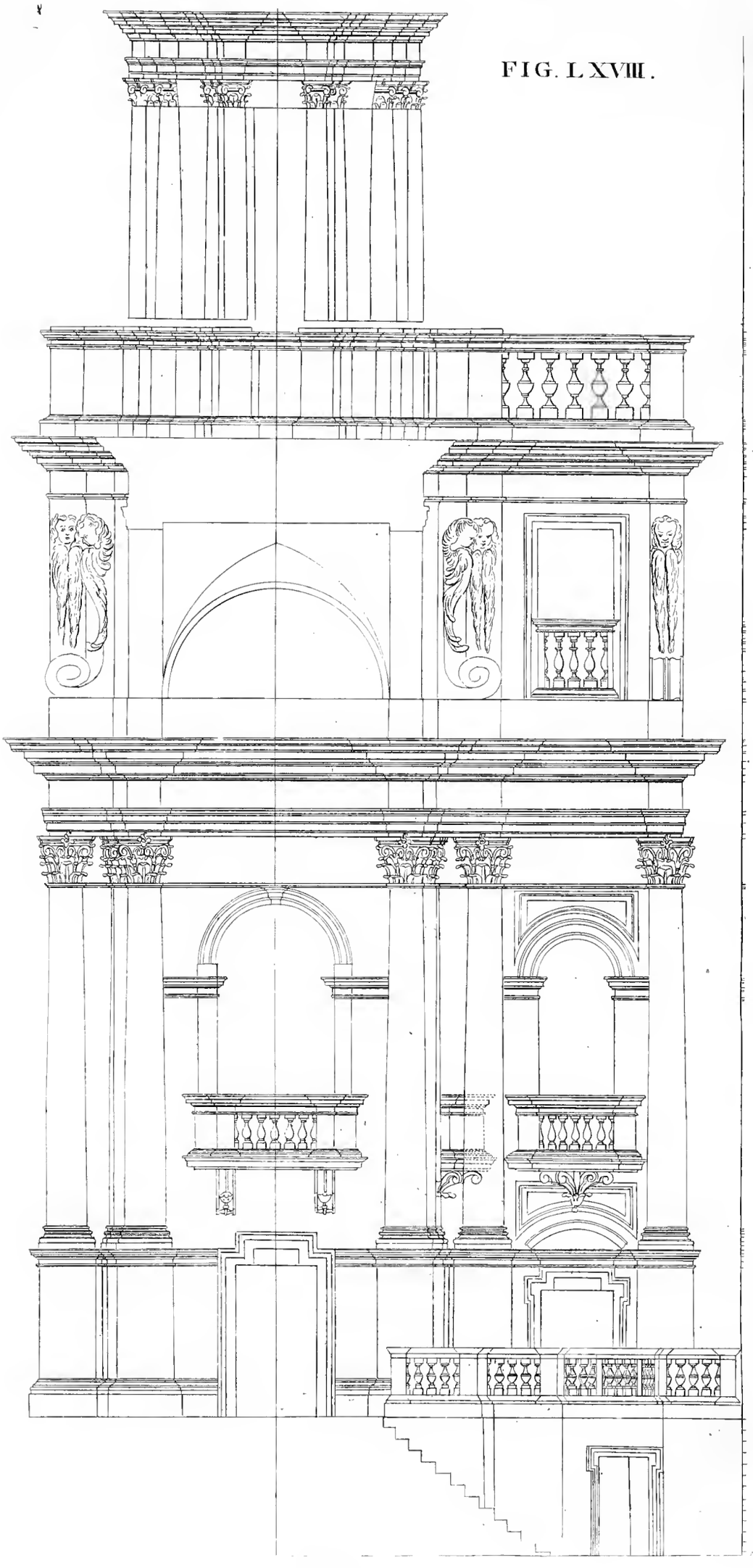
The Sixty-eighth FIGURE.

The Geometrical Elevation of the foregoing Plan, and ſecond Preparation to the Seventy-firſt Figure.

IN this Figure you have the Elevation of the aforeſaid Structure diſſected lengthwiſe; the Perſpective thereof is deſcrib'd in the Seventieth Figure; and you may obſerve that both of them conſiſt of the ſame Members: whence you may perceive, that for deſigning things of this kind, the Painter ought to have no leſs Skill in Architecture, than is requir'd for the Execution of ſolid Works.

UNIVERSITY OF GLASGOW
LIBRARY

FIG. LXVIII.



THE GLASGOW SCHOOL OF ART LIBRARY

Fig. LXIX.

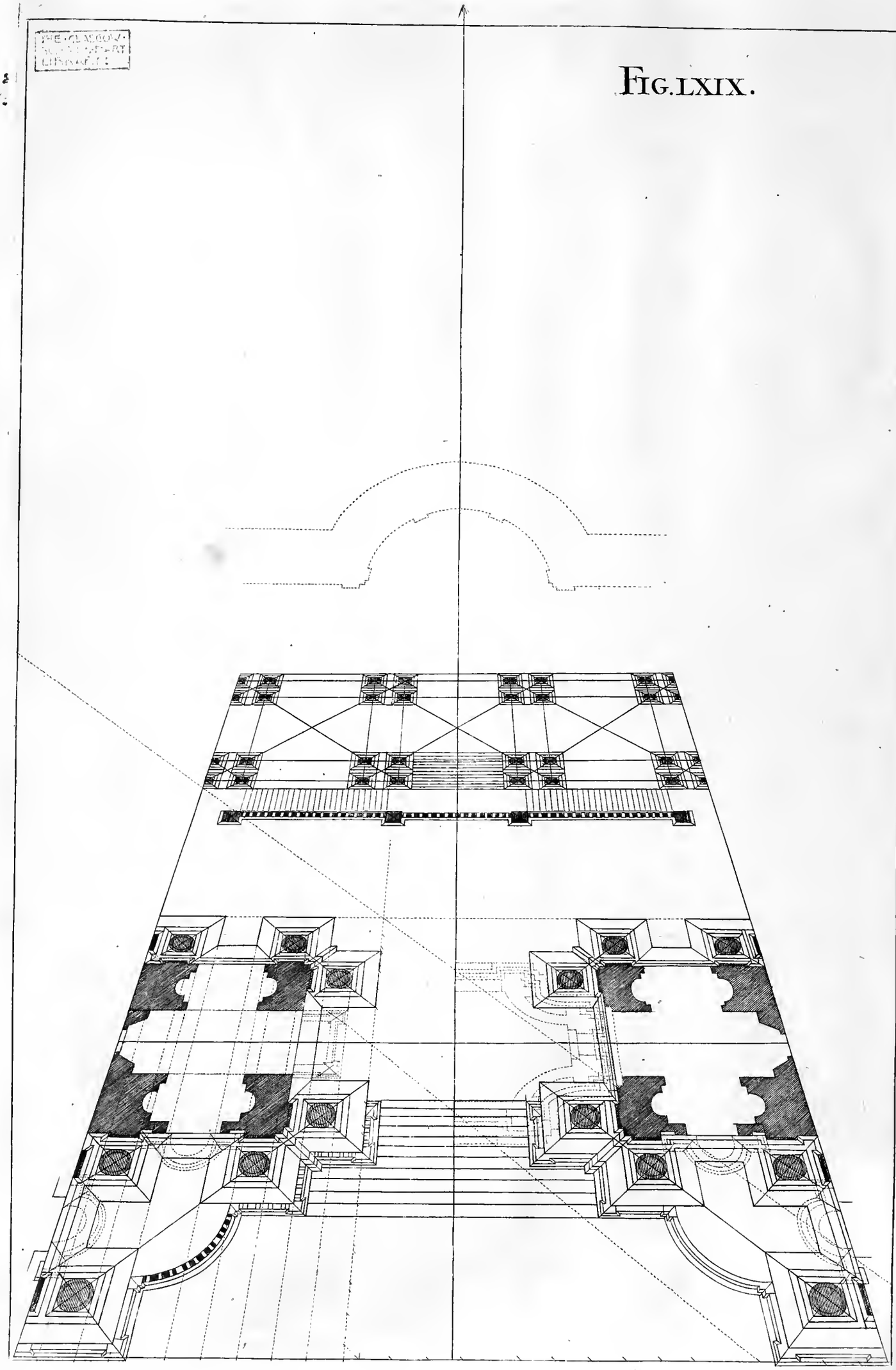


FIGURA Sexageſimanona.

Deformatio veſtigii figuræ ſexageſimæſeptimæ, & præparatio tertia ad figuram ſeptuageſimamprimam.

RTIFICIUM projectionis veſtigii hujus, explicatum à nobis eſt figurâ quadrageſimaſecundâ; nimirum, ut parallelæ ſint invicem diſtantiores, lineam plani deorſum protraximus, ut ex intuitu figuræ ſtatim cognoſces.

The Sixty-ninth FIGURE.

The Plan of the Sixty-ſeventh Figure in Perſpective, and third Preparation to the Seventy-firſt Figure.

HE Artifice us'd in projecting the Perſpective of this Plan, has been already ſhewn in the Forty-ſecond Figure; namely, that for giving the greater Diſtance between the Parallels, the Ground-line is drawn much lower than its true Place; as is manifeſt on Inſpection of the Figure.

FIGURA SEPTUAGESIMA.

Deformatio elevationis figuræ ſexageſimæoctavæ, & præparatio quarta ad figuram ſeptuageſimam primam.

QUÆ dicta ſunt de projectione veſtigii noſtri ædificii, habent locum in elevatione; nimirum, ut parallelæ invicem notabiliter diſtarent, uſi ſumus induſtriâ quam declaravimus figurâ quadrageſimaſecundâ.

The Seventieth FIGURE.

The Perſpective of the Elevation of the Sixty-eighth Figure, and the fourth Preparation to the Seventy-firſt Figure.

WHAT has been ſaid of the Perſpective-Plan of this Structure, is alſo here practis'd in the Elevation; namely, that the Parallels might be ſufficiently diſtinct, the Perpendiculars are drawn more remote from the Point of Sight, as was ſhewn in the Forty-ſecond Figure.

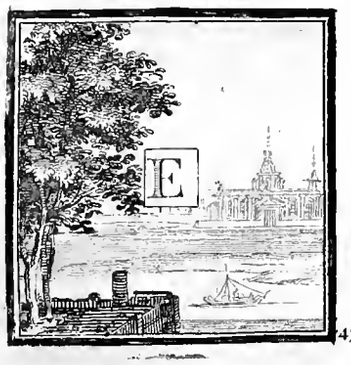
[illegible]

FIG. LXX.

FIG. LXXI.

FIGURA Septuageſimaprima.

Theatrum repræſentans Nuptias Canæ Galilææ, conſtructum Romæ, anno 1685. in expoſitione Ven. Sacramenti in Templo Farneſiano Societatis JESU.



X antecedentibus præparationibus eruimus projectionem nobilis hujus Architecturæ, quæ oculos implebat tum ad lucem ſolis diurnam, tum præcipuè ad lumen candelarum; ex quibus multæ palam erant expoſitæ, aliæ omnino latebant, ut illuminarent ſex diverſos ordines telariorum quibus tota machina conſtabat, non computando in hoc numero telaria, quæ in medio arcûs maximi exprimebant nubes refertas Angelis adorantibus Venerabile Sacramentum. Nubes iſtas omiſimus, ne abſconderentur partes interiorum ædificiorum. In diſponendis autem ordinibus telariorum, ſervatus eſt modus quem declaravi figurâ ſexageſimaprima & ſexageſimaſecunda; ac præterea in eligenda eorum diſtantia curatum fuit, ut candelæ in parte poſtica telariorum collocatæ, illuminarent faciem telariorum interiorum. Porrò quot membra præcipua in duabus faciebus majoribus, totidem diſtincta telaria numerabantur, quorum proinde connexiones diſcerni vix poterant; eorumque aliquot paria ferreis hamulis copulata erant, ut explicari ac replicari poſſent, ad faciliorem tractationem diuturnioremque conſervationem.

Qui hucuſque ſequuti me fuerint, nihil dubito quin ſuum iter feliciſſimè ſint proſequuturi; atque Opera his noſtris majora melioraque inventuri.

The Seventy-firſt FIGURE.

A Theater repreſenting the Marriage of Cana *in* Galilee, *erected in the* Jeſuits *Church at* Rome, *in the Year* 1685; *for the Solemnity of expoſing the Holy Sacrament.*

FROM the foregoing Preparations, is drawn the Perſpective of this noble Piece of Architecture; which ſtruck the Eye when ſeen by Day-light, but was more eſpecially ſurprizing by Candle-light; many of the Candles being expos'd to Sight, and others altogether hidden, to illuminate theſe ſix different Ranges of Scenes, of which the whole Work conſiſted, without reckoning that in the midſt of the great Arch, repreſenting Clouds fill'd with Angels adoring the bleſſed Sacrament. Thoſe Clouds are here omitted, that the inner Parts of the Work might be the better ſeen. In diſpoſing the ſeveral Ranges of Scenes, the ſame Method was obſerv'd, which was deliver'd in the Sixty-firſt and Sixty-ſecond Figures; and great Care was alſo taken in their Diſtances, that the Candles plac'd on the Back of one of them might illuminate the Face of the other behind it. Moreover, each Scene conſiſted of as many Parts, as there were principal Members in the two greater Façades; ſo that the Joints were ſcarcely diſcernible: and ſome Pairs of them being coupled with Hinges, folded and unfolded, for the more eaſy managing and preſerving them.

I doubt not but thoſe who have follow'd me thus far, will be encourag'd ſo to proſecute their Studies, as to be able to deſign even greater and more noble Works, than theſe of mine.

FIGURA Septuageſimaſecunda.

De theatris ſcenicis.

HEATRIS quæ jam delineavimus affinia ſunt theatra ſcenica; in his tamen non adeò facilè reperitur punctum oculi ſeu perſpectivæ. Præterea, quia ex obliquitate canalium intra quos moventur ſcenæ, oritur ut lineæ rectæ quæ videri debent parallelæ ad lineam plani, non debeant eſſe parallelæ ſed obliquæ, harum delineatio difficultate non caret. Incommodum iſtud vitari poſſet adhibendo canales parallelos ad poſcenium, ut alicubi fieri ſolet, præſertim in Germania. Nihilominus uſus Italicus affert hoc adjumentum, ut illi quibus incumbit ſuggerere actoribus, vel ſcenas movere, aliiſque ſimilibus præeſſe, facilius lateant & liberius fungantur munere ſuo.

Ut brevem ſummam habeas eorum quæ deinde latius declaraturi ſumus, hanc figuram contemplare. 1, 2, 3, 4, *eſt veſtigium aulæ quæ habet in longitudine centum-*
44 *viginti palmos Romanos, in latitudine ſexaginta palmos; ut oſtendit ſcala* S *triginta palmorum. Medietatem loci occupat theatrum, medietatem obtinent podia & loca ſpectatorum.* O *punctum in quo uniuntur lineæ viſuales,* D *locus pro apparentiis rerum magis ac magis diſtantium.* BC *locus poſcenii.* HH *ſunt canales obliqui, quorum latitudo eſt dupla latitudinis ſcenarum.* FG *frons & facies theatri.* AO *ejus profunditas aut longitudo.* E *locus pro pſaltibus, tibicinibus, & fiſtulatoribus.* K *ſpatium pro ſpectatoribus.* I *veſtigium podiorum.* L *ſcalæ podiorum.* N *ipſorum elevatio.* M *declivitas tabulati, cum ſectione & elevatione theatri. Et ſcenis ex latere inſpectis, quæ cum ſuis canalibus congruunt, ut demonſtrant lineæ occultæ.* OO *linea normalis ad lineam horizontalem.* P & Q *elevatio ſcenarum coram inſpectarum, quæ introrſum flectuntur; & in latitudine congruunt cum canalibus veſtigii* B, *in altitudine cum ſectionibus elevationis* M; *ut conſtat ex lineis occultis. In eadem elevatione* M *pars altitudinis tribuenda eſt ſcenis, pars laquearibus* R, *per quæ jungitur unumquodque per telariorum.* VV *lineæ ad explorandum an detur vacuum inter ſcenas & laquearia, vel inter ſcenas, vel inter laquearia. In quibuſdam autem ſcenis, loco laquearium pinguntur nubes & aer.*

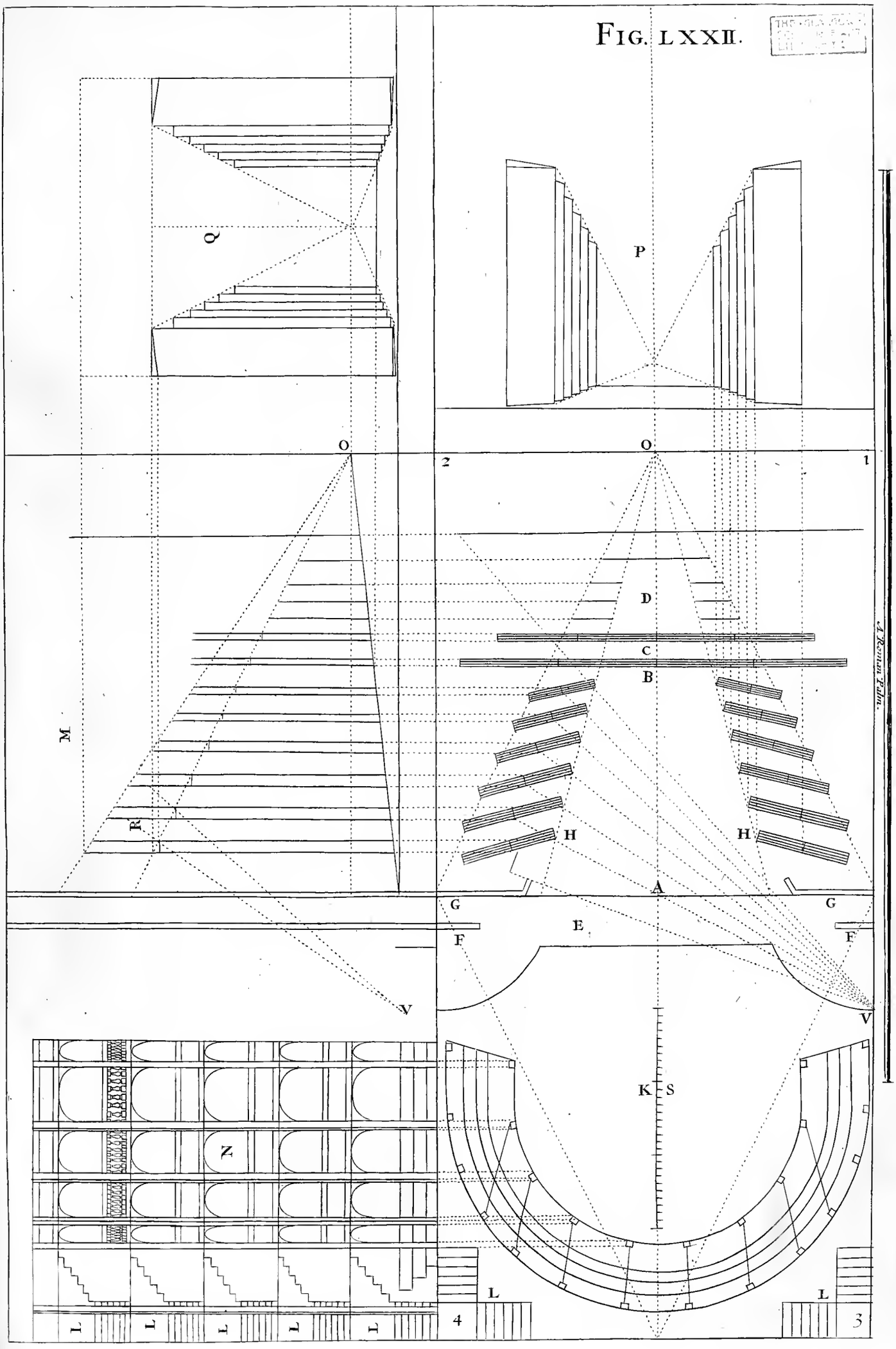
The Seventy-ſecond FIGURE.

Of Scenes for the Stage.

SCENES for the Stage have very much Affinity with thoſe lately deſcrib'd, but the Point of Sight is not ſo eaſily found in theſe; and from the Obliquity of the Grooves in which the Scenes run, it comes to paſs, that the right Lines which ought to appear parallel to the Line of the Plan, muſt not be drawn parallel thereto, but oblique; which is a Work of ſome Difficulty. This indeed may be avoided by fixing the Grooves parallel to the Poſcene; as is uſual in ſome Places, eſpecially in *Germany*. Nevertheleſs, the *Italian* Manner has this Advantage, That thoſe who are employ'd to prompt the Actors, and ſhift the Scenes, *&c.* are leſs expos'd to Sight, in the Performance of their Buſineſs.

In this Figure I have given you an Abridgment of thoſe things, which ſhall hereafter be more enlarg'd on. The Numbers 1, 2, 3, 4, denote the Area of a Hall an
32 hundred and twenty *Roman* Palms in Length, and ſixty in Breadth; as is manifeſt from the Scale of thirty Palms mark'd S. Half this Space is taken up by the Stage, the other half by the Spectators. O is the Point in which the viſual Lines concenter. D is the Place of thoſe things that are to appear moſt remote. BC is the Place of the Poſcene. HH are the oblique Grooves, whoſe Lengths are double the Breadth of the Scenes. FG is the Front of the Stage. AO is its Depth or Length. E is the Place for the Muſick. K is the Room for Spectators. I is the Plan of the Galleries. L the Stairs to the ſame. N is the Elevation of the Galleries. M ſhews the Declivity of the Floor, with the Section and Elevation of the Stage and Scenes view'd on the Side; anſwering their reſpective Grooves, as the occult Lines demonſtrate. OO is a Line perpendicular to that of the Horizon. P and Q are the Elevation of the Scenes view'd in Front, turning inwards, in Breadth agreeing with the Length of the Grooves of the Plan B; and in Height anſwering that of the Sections of the Elevation M; as is evident from the occult Lines. In this Profile M, part of the Height belongs to the Scenes, and part to their Soffites, or Cielings, R; where each Pair of theſe Frames are join'd. VV are the Lines by which is eſpy'd what Vacancy there is either between the Scenes and their Cielings, between the Scenes themſelves, or between their reſpective Cielings; tho in ſome Scenes the Place of theſe laſt is ſupply'd by painting therein the Air with Clouds, *&c.*

Fig. LXXII.



LIBRARY

FIG. LXXIII.

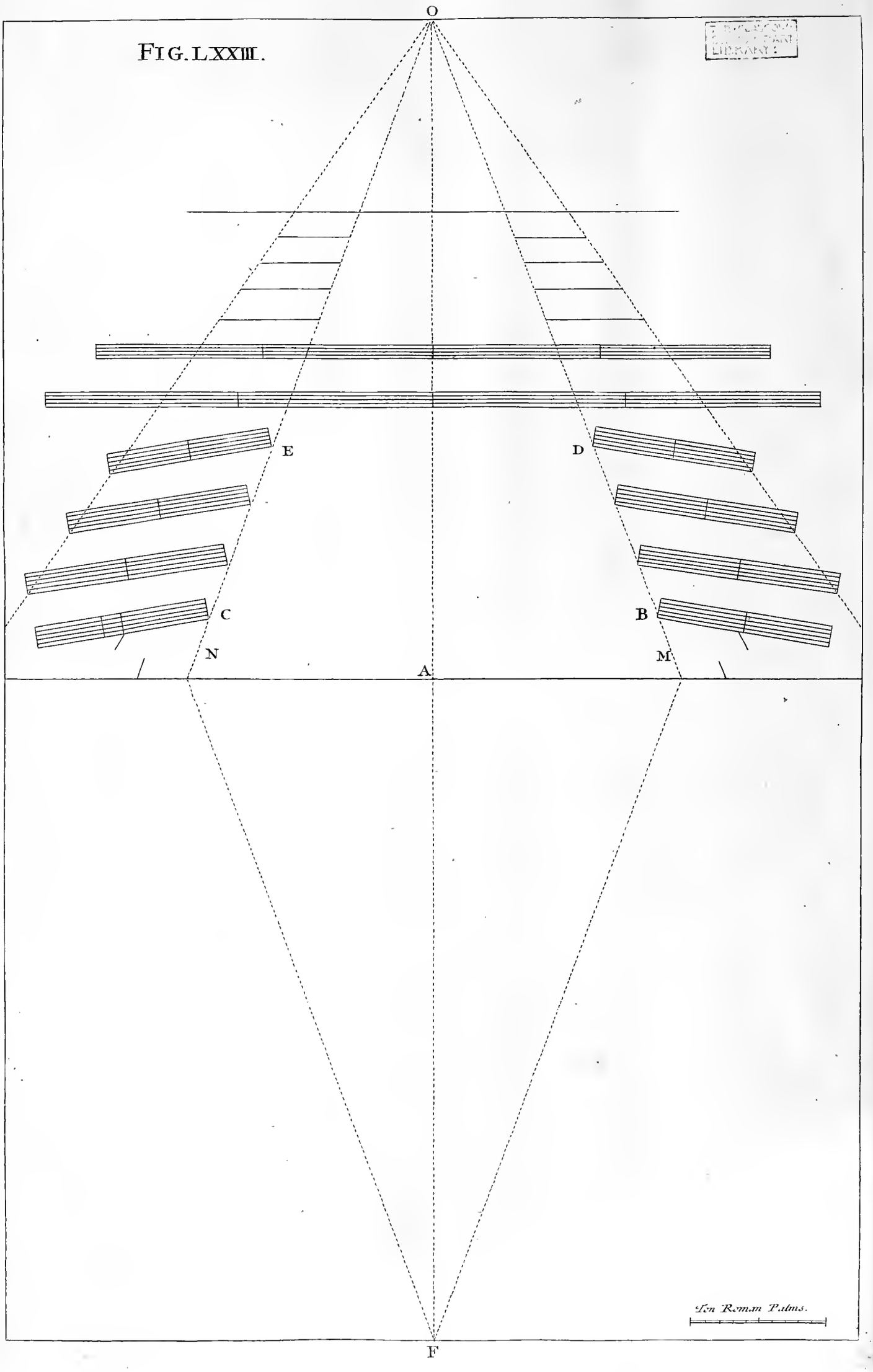


FIGURA Septuageſimatertia.

Aliud veſtigium theatri, ubi de modo inveniendi ejus punctum.

I pingendæ ſint ſcenæ theatri alicujus antea conſtructi, delineare oportebit veſtigium geometricum ex ipſo erutum, (ad formam veſtigii quod cernis in hac pagina) ut inveniatur longitudo theatri, ſeu diſtantia quam ejus punctum habet à puncto A: *id autem nullo negotio fiet, accipiendo diſtantias* BC *inter primos canales, &* DE *inter ultimos, ac ducendo viſuales* MO, NO: *nam theatrum habebit longitudinem* AO, *ac punctum perſpectivæ in veſtigio theatri erit* O. *Præterea ſcire oportebit longitudinem & latitudinem canalium, eorumque numerum, diſtantias, & flexus; ac præcipuè curandum eſt, ut, licet ſint obliqui ad lineam* MN, *ſint invicem paralleli in unoquoque latere, ac ſinguli tangant lineas* MO, NO. *Jam ſi rectæ* AO *fiat æqualis recta* FA, *in* F *erit punctum diſtantiæ: adeoque ſi theatrum juxta methodum à nobis tradendam depictum fuerit, ſpectatori qui conſiſtat in* F *apparebit veluti tabula picta juxta leges perſpectivæ, poſita in* A.

The Seventy-third FIGURE.

Another Plan of a Theater, with the Method of finding the Point of Sight therein.

IF it be requir'd to paint the Scenes of ſome Theater already built, the Geometrical Plan thereof muſt firſt be carefully drawn, (as you ſee, for Example, in this Plate) that the length of the Theater may be found; or the Diſtance of its Point from that of A; which is eaſily done, by taking the Interval BC of the firſt Grooves, and DE of the latter; and drawing the Viſuals MO, NO: for AO is the Length of the Theater, and the Point of Sight, or Perſpective, therein, is O. Moreover the Length and Breadth of the Grooves muſt be known, as alſo their Numbers, Diſtance, and Obliquity; and eſpecial Care muſt be taken, that tho they be oblique to the Line MN, that on each Side they be Parallels between themſelves, and that they all touch the Lines MO, NO. If you then make AO equal to FA, the Point of Diſtance will be F; and if the Theater be painted according to the Rules hereafter given, it will appear to him that views it from F, as a regular Piece of Perſpective plac'd in A.

Figura Septuageſ. quarta.

Sectio Scenarum Theatri.

RÆTER veſtigium Theatri delineanda eſt ſectio ſcenarum. Itaque ſi acceptis menſuris altitudinis, quam punctum A *unde incipit tabulatum, ac punctum* D *poſcenii, habent ſupra planum horizontale* F V, *fiant ex perpendiculo* N V *tum recta* A D O *ex qua innoteſcit declivitas tabulati, tum recta* N O, *quæ ſit parallela ad* F V *& æqualis rectæ* A O *figuræ ſeptuageſimætertiæ; punctum theatri in elevatione eſt* O; *in poſcenio verò punctum theatri eſt* Q. *Si maxima ſcenarum altitudo ſit* E B, *recta* O E *dat altitudinem omnium reliquarum. Vera tamen altitudo cujuſlibet ſcenæ eſt illa quam habet linea major, ex minori autem dignoſcitur quantum obliquitas cujuſquè ſcenæ apparenter minuat altitudinem extremæ illius lineæ. Porro exceſſus quo linea major ſuperat minorem tum in ſummo tum in imo, diligenter notandus eſt, hinc enim pendit intelligentia figuræ ſeptuageſimæquintæ. Punctum* M *quod eſt remotum ad* N *quantum in figura ſeptuageſimatertia punctum* F *eſt remotum ab* A, *deſignat locum unde Theatrum ſpectari oporteat, ut ibidem notavimus.*

In conſtruendo tabulato ſolet ſervari hæc regula, ut altitudo puncti O *ſit æqualis altitudini oculi, & elevatio ex* A *uſque ad* D *ſit nona circiter vel decima pars ipſius longitudinis* A D. *Expediret autem ad ſcenas facilius movendas, pavimentum* F *eſſe profundius pavimento* G, *ut erecto corpore ſub tabulato ambulari poſſit.*

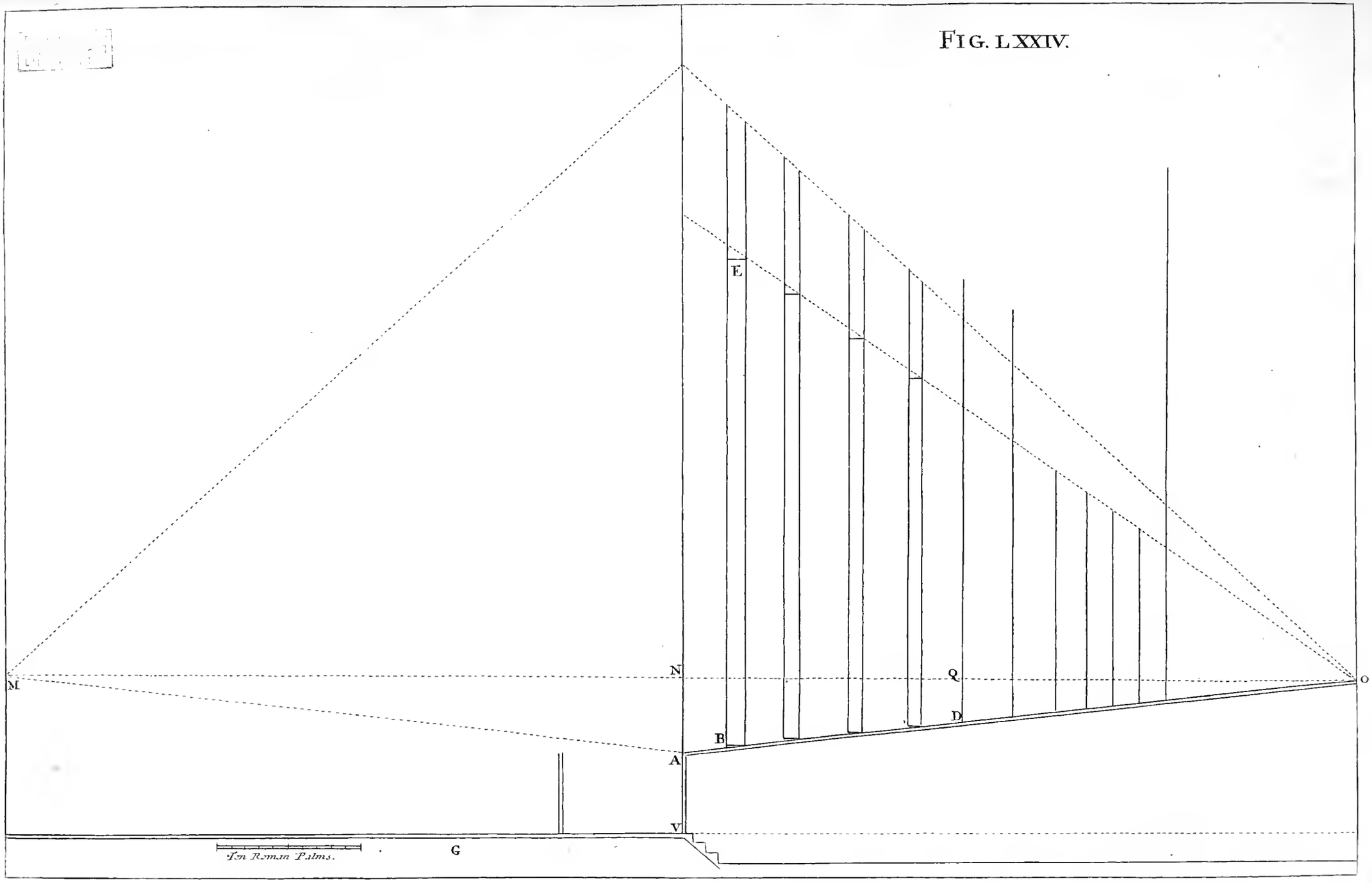
The Seventy-fourth Fig.

The Section or Profile of Scenes for Theaters.

BESIDES the Plan of the Theater, the Section of the Scenes is alſo to be delineated, for finding the Point of the Theater in the Elevation. Wherefore, ſetting the Meaſures of the Heights which the Point A, where the Floor of the Stage begins, and the Point D of the Poſcene, have above the Level of the Horizontal F V; from the Perpendicular N V draw the right Line A D O, which gives the Declivity of the Stage; then make N O parallel to F V, and equal to A O of the Seventy-third Figure: The Point of the Theater in Elevation is O; the Point of the ſame on the Poſcene is Q. If E B be the greateſt Height of the firſt Scene, the Line O E determines the Height of all the others. The longeſt of the two Lines gives the true Height of each Scene; and the ſhorter diſcovers how much of that Height the Sight loſes on the Out-line, by the oblique Poſition of the Scenes. Moreover, the Exceſs of the longer Line above the ſhorter, as well at top as at bottom, is to be well obſerv'd; for on this depends the right underſtanding of the Seventy-fifth Figure. The Point M, which is as far diſtant from N, as that of F is from A in the Seventy-third Figure, denotes the Place from whence the Stage ought to be view'd; as is there mention'd.

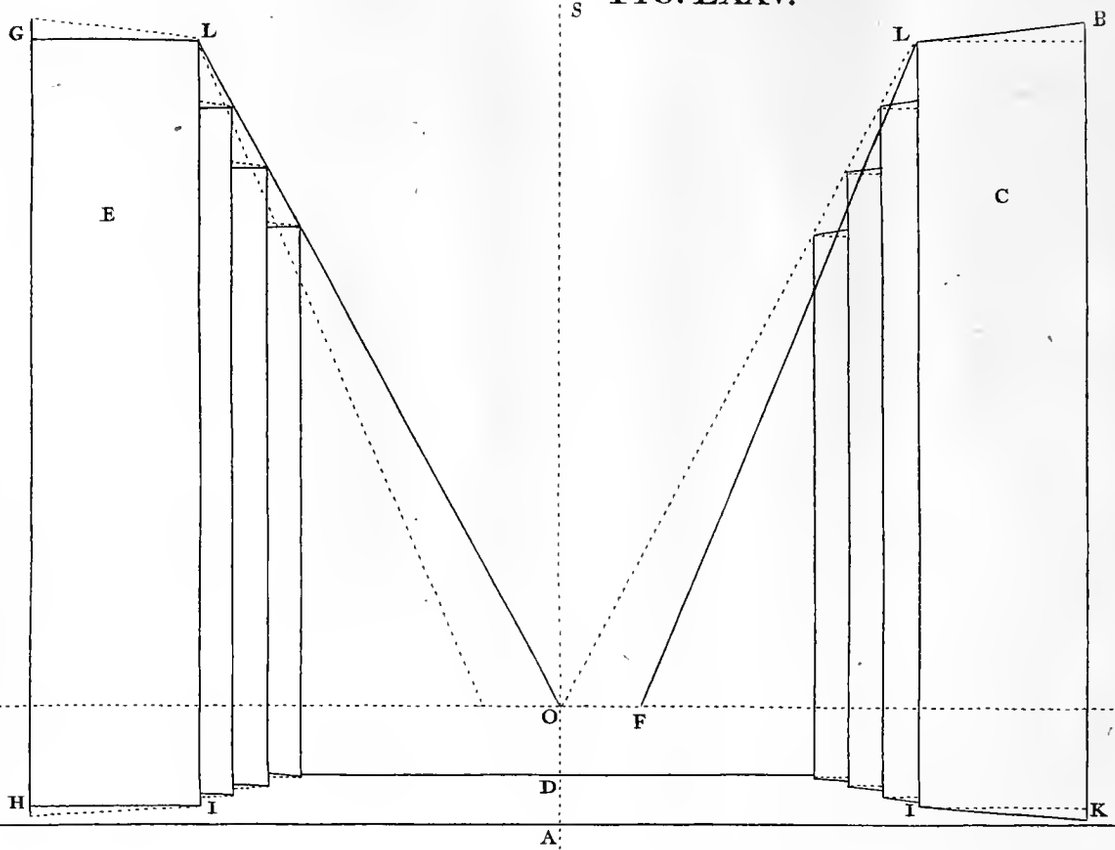
In laying the Floor of the Stage, this Rule is commonly obſerv'd, That the Height of the Point O be made equal to the Height of the Eye, and that the Riſe of the Floor from A to D, be about a Ninth or Tenth Part of the Length A D. 'Tis alſo requiſite, for the better ſhifting the Scenes, that the Pavement F be ſunk lower than that of G, that a Man may walk upright under the Floor thereof.

FIG. LXXIV.



THE GLASGOW
SCHOOL OF ART
LIBRARY

FIG. LXXV.



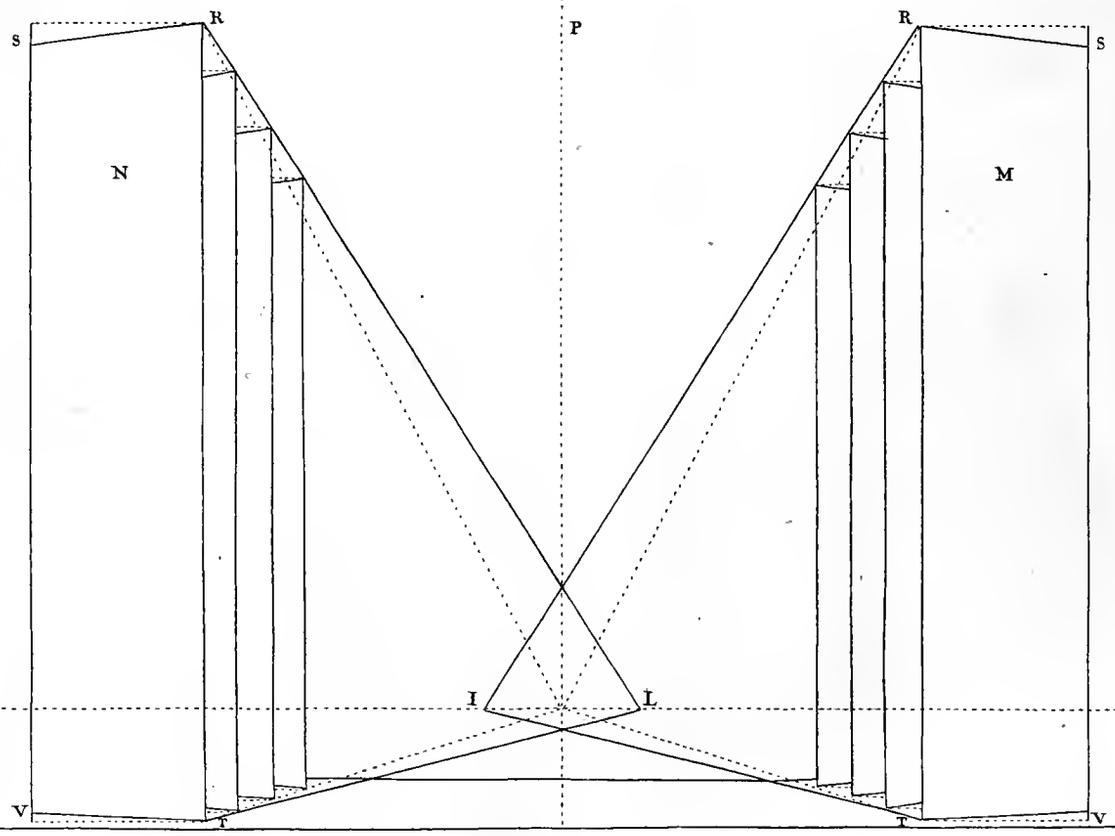


FIGURA Septuageſimaquinta.

Elevatio ſcenarum coram inſpectarum: ubi docetur artificium ut ſcenæ obliquæ appareant rectæ.

CENÆ quas vides in S, *habent ſuam latitudinem à veſtigio figuræ ſeptuageſimætertiæ, altitudinem ab elevatione figuræ ſeptuageſimæquartæ, ac cenſentur erectæ & canalibus inſertæ, quæ omnia repræſentantur etiam figurâ ſeptuageſimaſecundâ in* P *&* Q. *Velim obſerves quantum elevetur tabulatum in principio* A, *in poſcenio* D, *& in puncto theatri* O. *Similiter notare oportet elevationem ſingularum ſcenarum, quæ propter obliquitatem canalium flectuntur introrſum: iccirco lineæ* BL, KI, *partis* C, *non videntur parallelæ ad lineam plani, ut reipſa ſunt; ac viſualis* LF *non tendit ad punctum oculi* O, *ſed ad punctum* F, *Si autem exceſſus apparens, quem recta* BK *habet in ſummo & imo ſupra rectam* LI, *transferatur in partem* E *ſcenarum, (iidem exceſſus deſumi etiam poſſunt ex figura ſeptuageſimaquarta) ac ducantur rectæ* LG, IH, *habebuntur lineæ apparenter parallelæ ad lineam plani. Si fiat recta* LO, *quæ cum* LG *faciat angulum* GLO *æqualem angulo* BLF, *eadem* LO *tendet exactiſſimè ad punctum* O *oculi, eâque utendum erit ut viſuali.*

In P *ſupponimus ſcenas* M *&* N *jacere ſuper pavimento unas ſuper aliis, ac duas lineas* RT, *habere diſtantiam eandem cum duabus* LI, *& ita in reliquis ſcenis. Ubi notandum eſt, lineas* RS, TV, *eaſdem eſſe cum lineis* LG, IH, *ſcenarum* E: *nihilominus lineas* RS, TV, *non eſſe parallelas, quum tamen* LG, IH, *videantur parallelæ. Proinde ſi fiat recta* RL, *& anguli* SRL, GLO, *ſint æquales rectâ* RL *utendum erit tanquam viſuali, in* L *erit punctum accidentale oculi pro pingendis ſcenis* N, *ac lineæ* RS, TV, *habebuntur ut parallelæ: id autem quod ſupereſt in telario ultra tales lineas, pro nihilo computabitur, ibique pingetur aer aut aliquid aliud. Punctum accidentale oculi pro pingendis ſcenis* M, *erit in* I.

The Seventy-fifth FIGURE.

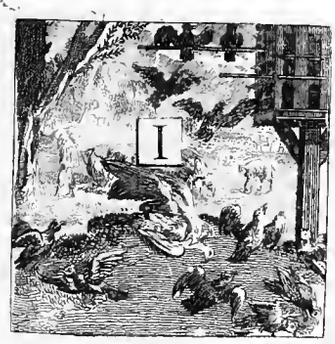
The Elevation of Scenes in Front, and how the oblique Scenes are made to appear direct.

THE Scenes in S have their Breadth from the Plan of the Seventy-third Figure, and their Height from the Elevation of the Seventy-fourth Figure; and are ſuppos'd to ſtand perpendicularly in their Grooves; all which is alſo repreſented in P and Q of the Seventy-ſecond Figure. I would have you obſerve, how much the Floor riſes, from its Edge A, to the Poſcene D, and to the Point of the Theater O. You ſhould alſo note the Elevation of each Scene, which, by reaſon of the Obliquity of the Grooves, turn inward: Wherefore the Lines BL, KI, of the Part C, do not ſeem Parallels to the Ground-line, as they really are; and the Viſual LF tends not to the Point of Sight O, but to the Point F. But if the ſeeming Exceſs, which the Line BK has at top and at bottom, above the Line LI, be transferr'd on the Side of the Scenes E, (which Exceſs may alſo be taken from the Seventy-fourth Figure) and you draw the Lines LG, IH; theſe Lines will appear Parallels to the Line of the Plan. Then drawing the Line LO, ſo as to make the Angle GLO equal to the Angle BLF, the ſaid LO ſhall tend directly to the Point of Sight O; and ſerve for a viſual Line.

In P, I ſuppoſe the Scenes M and N to lie one upon another on the Floor, and the two Lines RT to have the ſame Diſtance as the Lines LI; and ſo of the others. Where you are to take Notice, that the Lines RS, TV, are the ſame with the Lines LG, IH, of the Scenes E: and that the Lines RS, TV, are not Parallels; altho LG, IH, ſeem to be ſo. Therefore, if you draw the Line RL, ſo that the Angles SRL, and GLO, be equal; the Line RL ſhall ſerve as a Viſual, and L ſhall be the accidental Point of Sight, for painting the Scenes of the Side N; and the Lines RS, TV, ſhall be us'd as Parallels. What remains on the Frame beyond thoſe Lines, is to be reckon'd as nothing; but you may paint there Air, or what you pleaſe. The accidental Point of Sight for painting the Scenes of the Side M, is I.

FIGURA Septuageſimaſexta.

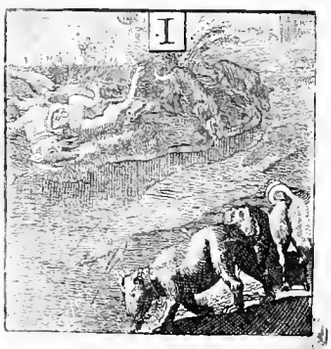
Modus delineandi exemplar ſcenarum.



TERUM delineavimus ſcenas erectas ſuper tabulato; in B *nudas, in* A *depictas, additis projecturis coronicum & aliorum ornamentorum. Deformatio ſcenarum* A *eruitur methodo conſuetâ ex veſtigio* C, *in quo videbis lineam plani deorſum protractam. Veſtigium autem geometricum eſt in* D.

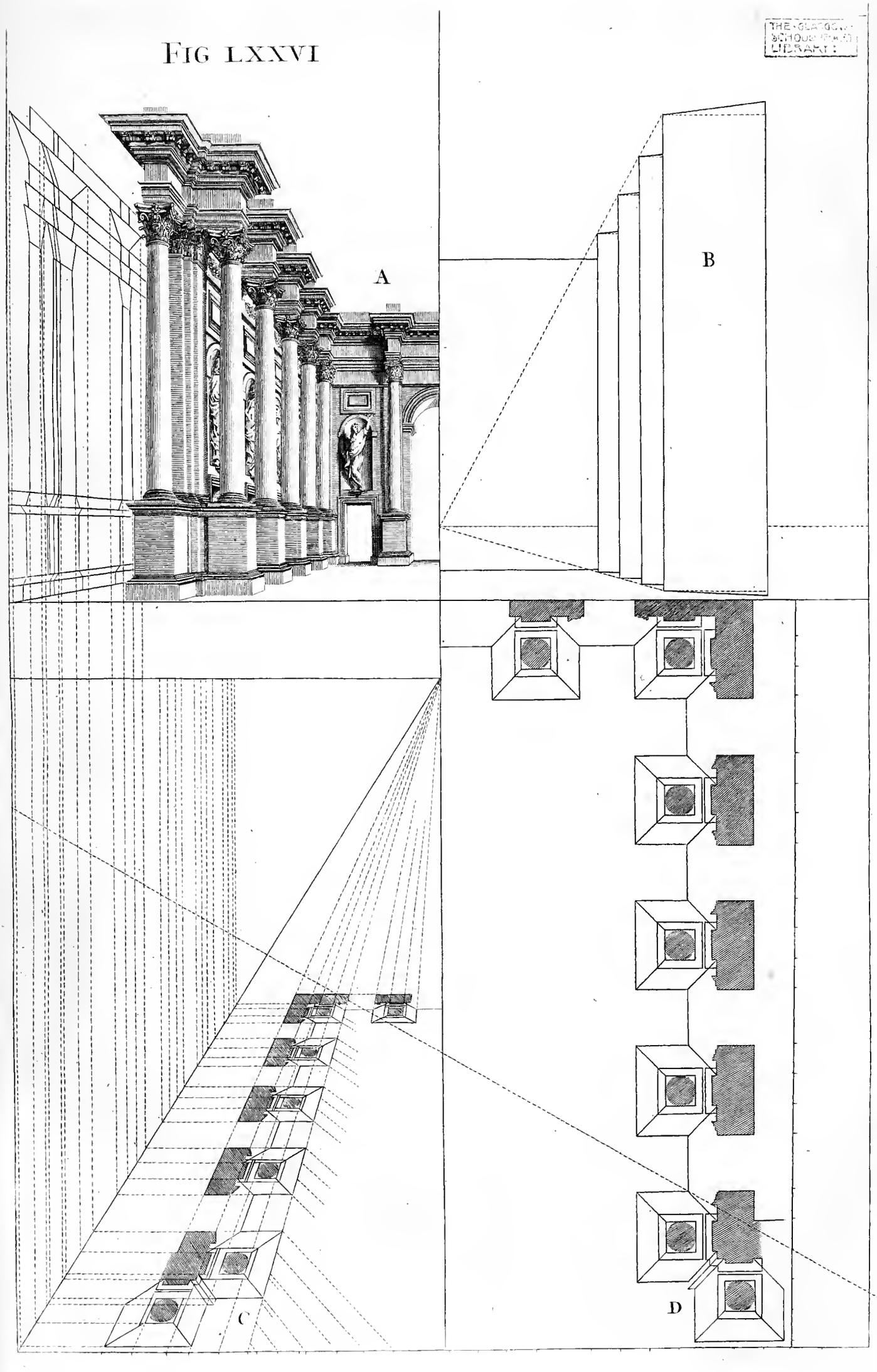
The Seventy-ſixth FIGURE.

The Manner of delineating the Deſigns of Scenes.



IN this Plate you have another Deſign of Scenes erected on the Floor; the naked Scenes are B; the painted ones A; with the additional Projectures of Cornices and other Ornaments. The Draught of the Scenes A is produc'd from the Plan C, after the uſual Manner; in which you may obſerve the Ground-line to be lower than its true place, for the greater Diſtinction of the Parallels. The Geometrical Plan is D.

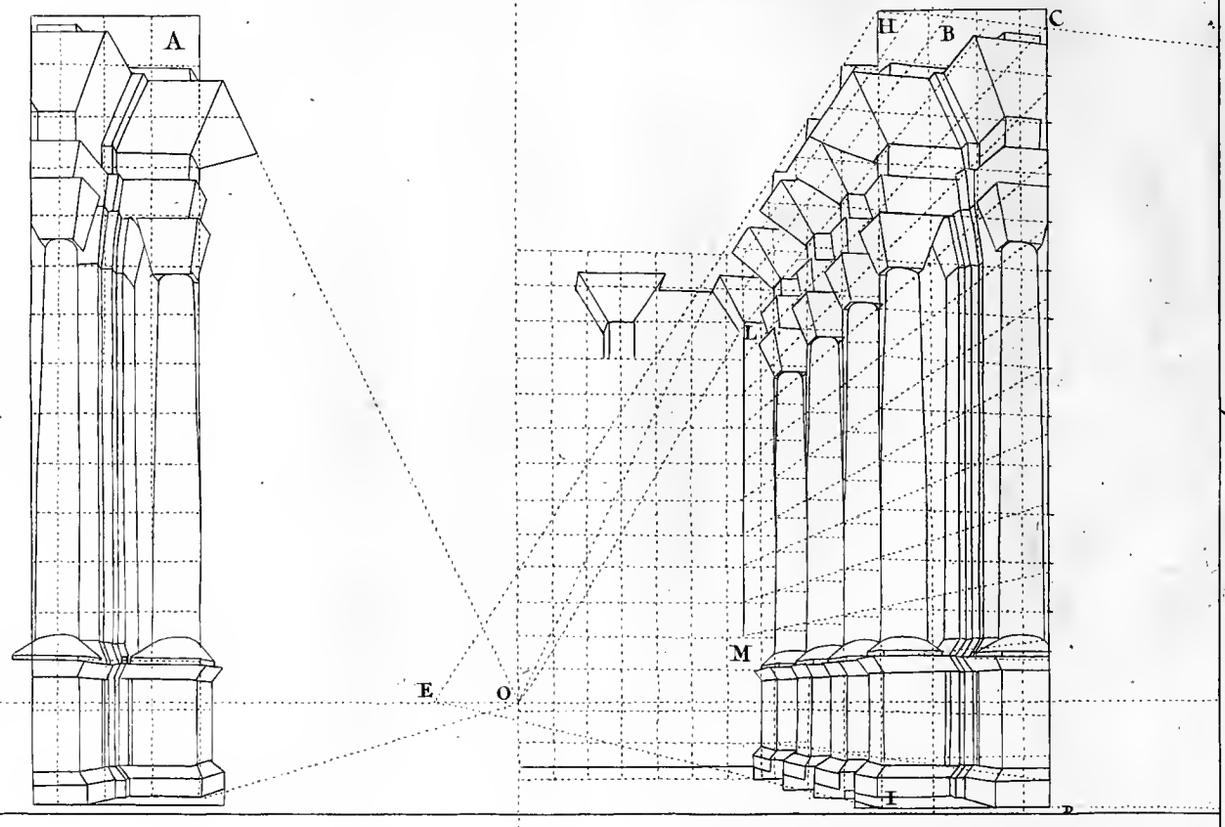
Fig LXXVI



THE GLASGOW SCHOOL OF ART LIBRARY

THE GLASGOW
SCHOOL OF ART
LIBRARY

Fig. LXXVII.



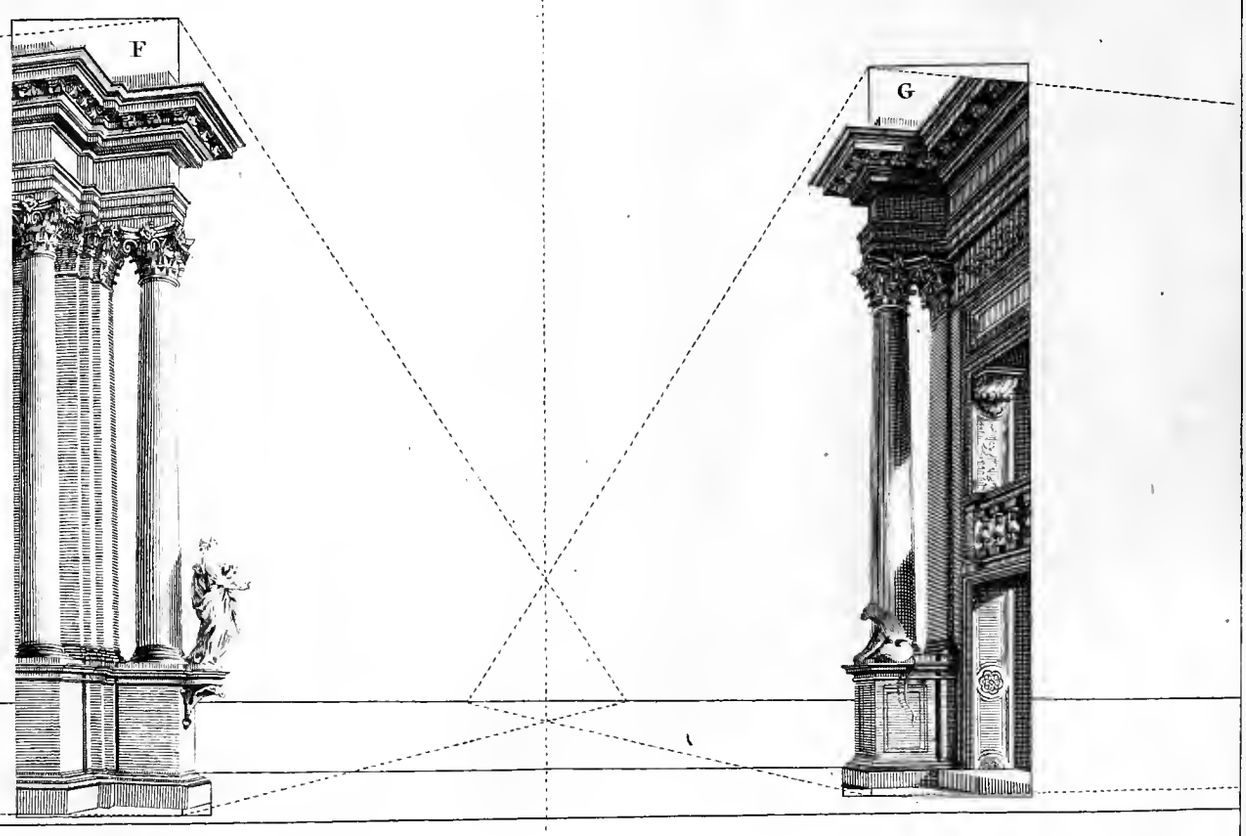


FIGURA Septuageſimaſeptima.

Modus reticulandi & pingendi ſcenas theatri.

OSTQUAM in pavimento exactiſſimè diſpoſueris tum poſcenium, tum ex ordine ſcenas reliquas, unam alteri incumbentem, ut figurâ ſeptuageſimaquintâ declaravimus, fiet linea horizontalis, in qua notanda ſunt tria puncta perſpectivæ, unum in O *uſui futurum in pingendo poſcenio, ac duo reliqua hinc inde, ſingula videlicet pro ſcenis partis oppoſitæ. Jam ſupponendo quòd in parvo exemplari* A *primæ ſcenæ facta fuerit reticulatio per quadrata perfecta; proportionalis diviſio fiet tum in recta* HI *primæ ſcenæ* B, *tum in recta* CD. *Poſtea ex puncto* E, *per ſingula puncta diviſionum rectæ* HI, *fient viſuales adhibendo funiculum colore nigro imbutum; earumque ope, ut figura oſtendit, reticulare oportebit ſcenam* B, *tum remota ea ſcenam illi ſubjectam, & eodem modo aliam & aliam; ac demum per diviſiones quas in recta* LM *faciunt viſuales ex puncto* E, *abſolvetur reticulatio poſcenii, cujus quadrata eſſe debent perfecta, ſecus quadrata ſcenarum. In parte inferiori paginæ, duæ ſcenæ* G *&* F *oſtendunt ornamenta quæ in ſcenis depingi poſſunt. Velim autem obſerves, tum lineas tranſverſas coronicum, quæ non ſunt invicem parallelæ, tum viſuales quæ tendunt ad puncta oppoſita. Nam ejuſmodi lineæ continent duas peculiares difficultates projectionum theatralium; eaſque ut ſuperes, exactè ſervandæ ſunt regulæ quas declaravimus.*

The Seventy-ſeventh FIGURE.

The Manner of making the Net-work or Squares, and painting the Scenes of Theatres.

AFTER you have with great Exactneſs diſpos'd the Poſcene on the Pavement, and the others in order one upon another, as was mention'd in the Seventy-fifth Figure; draw the Horizontal-line, and mark therein three Points of Sight: That in O, for the Uſe of the Poſcene; and the Points on the Sides, for the Service of the oppoſite Scenes reſpectively. Then, ſuppoſing that the Net-work of the ſmall Draught of the firſt Scene A, conſiſts of perfect Squares; tranſport the ſame Diviſions both on the Lines HI and CD of the firſt Scene B; and with a black Line ſtrike the Viſuals from the Point E, by the Points of the Diviſions of HI; and by the Help of thoſe Viſuals make the Net-work of the Scene B, as is done in the Figure. When that's done, lay it aſide; and do the next in the ſame manner; and ſo of the others. Laſtly, by the Diviſions, which the Viſuals from the Point E make on the Perpendicular LM, finiſh the Net-work on the Poſcene, which conſiſts of perfect Squares, tho that of the Scenes does not. The two Scenes of the lower part of the Plate, G and F, ſhew what Diverſity of Ornament the Painter may introduce. I would have you alſo take particular Notice, both of the tranſverſe Lines of the Cornice, which are not Parallels to each other; and of the Viſuals which are directed to their oppoſite Points: becauſe in theſe two Particulars lies the greateſt Difficulty of deſcribing Theatrical Deſigns; for the ſurmounting which, it's abſolutely neceſſary, that you carefully regard the Rules hitherto deliver'd.

FIGURA Septuageſimaoctava,

De projectionibus horizontalibus.

QUEMADMODUM facilior eſt deformatio columnarum jacentium, quàm columnarum erectarum; (nam lineæ quæ in iſtis ſunt perpendiculares, in illis ſunt viſuales, ac nullus circulus amittit ſuam formam) ita projectiones horizontales, quas in laquearibus delineare neceſſe eſt, contra quam Pictores imaginantur, expeditiores & faciliores ſunt verticalibus, quas hucuſque tractavimus. Nam ut ſtylobatæ & columnæ appareant erectæ, pingendæ ſunt veluti jacentes.

Deformationes horizontales auſpicamur à mutulis, quia columnæ ac ſtylobatæ identidem iis imponuntur, ut magis in proſpectu ſint. Ob diverſitatem verò quam habet latus mutuli à ſua facie, utriuſque delineationem geometricam ſeorſim in hac figura exhibemus.

The Seventy-eighth FIGURE,

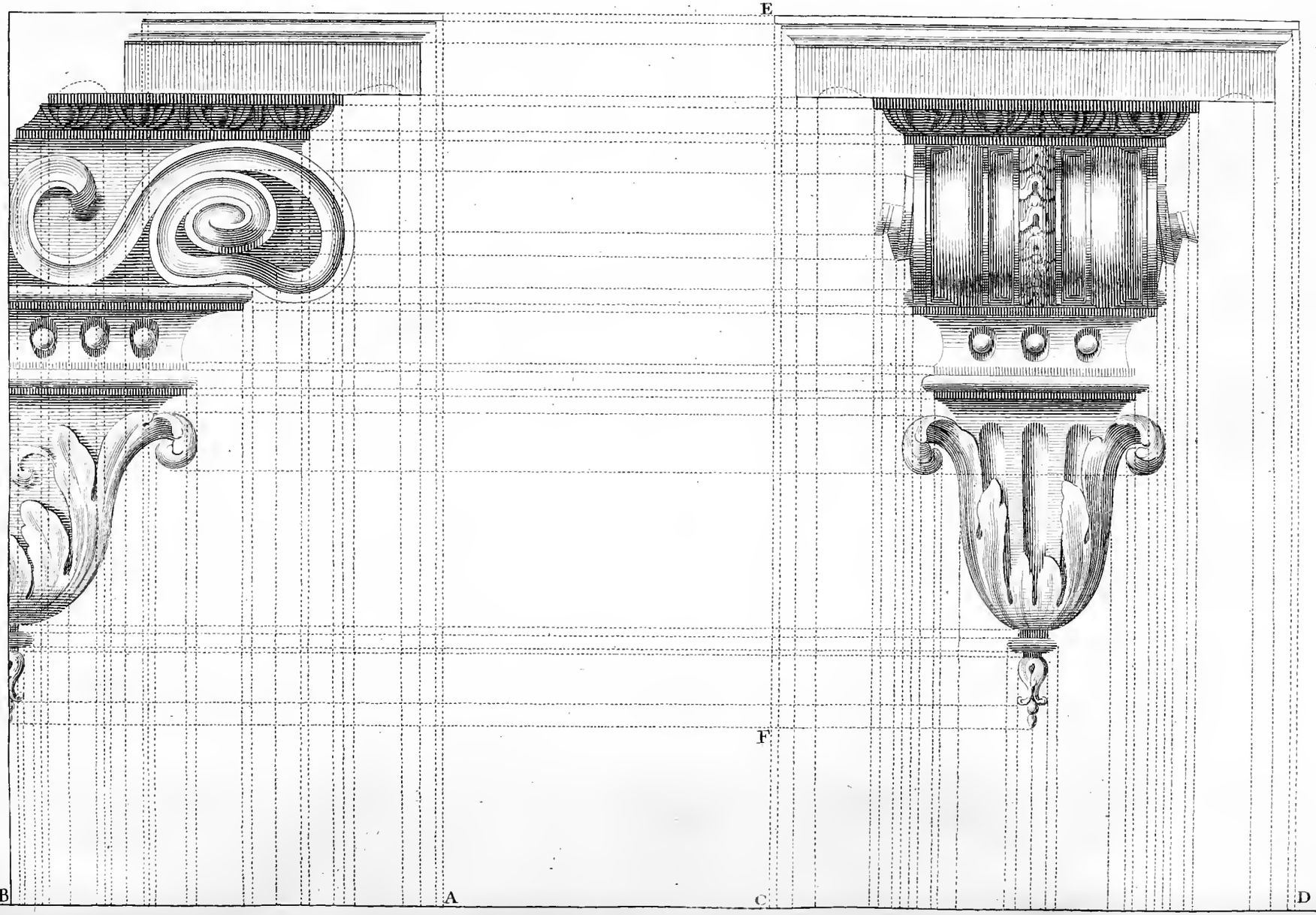
Of Horizontal Perſpective.

AS it is eaſier to deſcribe in Perſpective Columns lying on the Ground, than thoſe that are Erect, (the Lines in theſe laſt being Perpendiculars, which in the former are Viſuals, wherein no Circle loſes its Form) ſo the Horizontal Projections of Perſpective, proper for Cielings, contrary to the Judgment Painters uſually make, are perform'd with more Eaſe and Expedition, than the Vertical, which we have hitherto treated of; foraſmuch as the Pedeſtals and Columns that muſt appear erect, are painted as if lying on the Ground.

I have uſher'd in theſe Horizontal Deſigns with thoſe of Corbels, becauſe, for ſetting the Pedeſtals and Columns more in View, they generally ſeem to be ſupported by them. And the Side of this Corbel being different from its Face, I have here inſerted a Geometrical Deſcription of each diſtinct.

THE GLASGOW
SCHOOL OF ART
LIBRARY

FIG: LXXVIII.



THE GLASGOW SCHOOL OF ART LIBRARY

FIG. LXXIX.

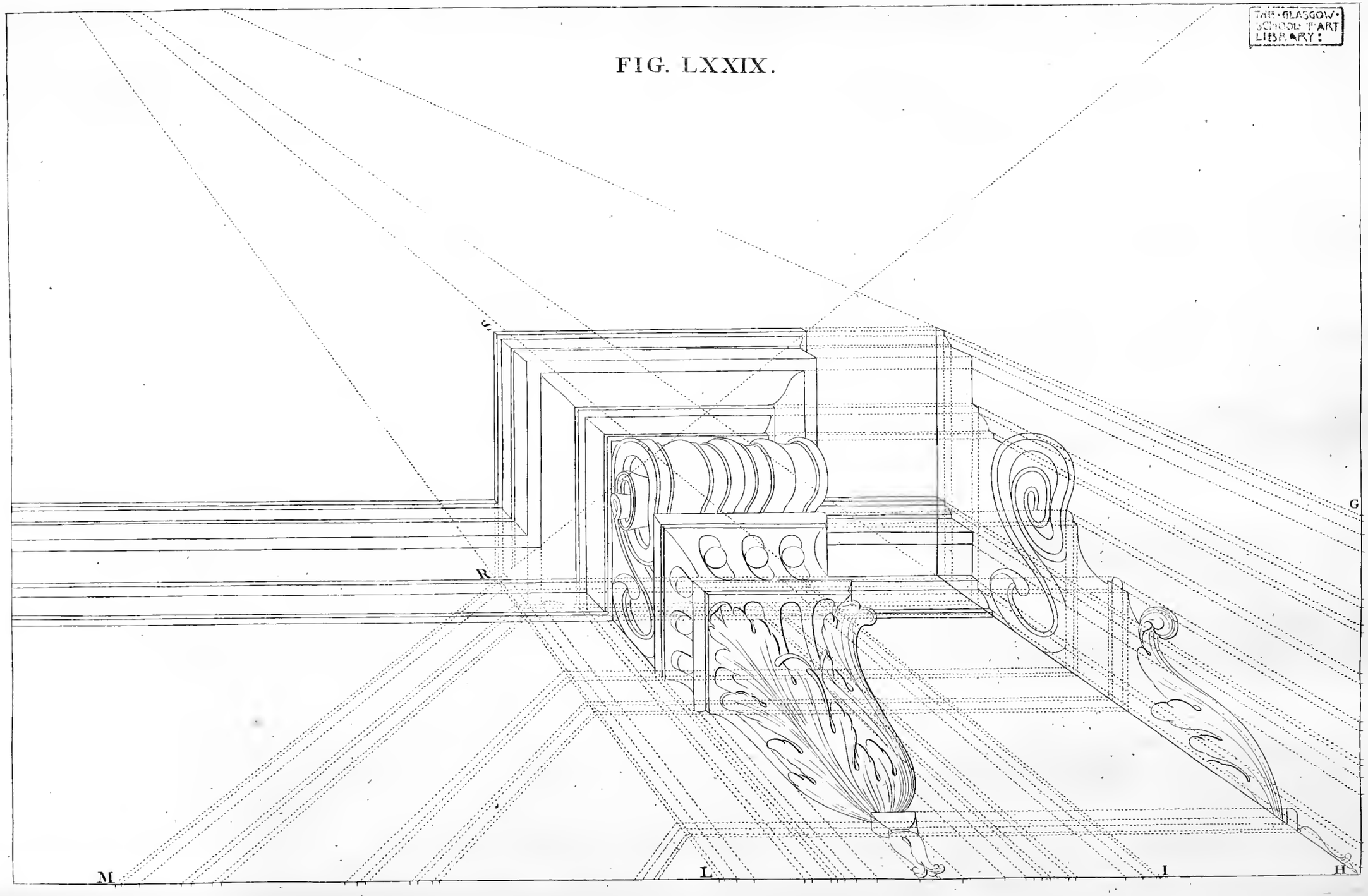


FIGURA Septuageſimanona.

Projectiones veſtigii & elevationis mutuli.

ACIES mutuli quam delineavimus Figurâ ſeptuageſimaoctavâ, gerit hic munus veſtigii; latus verò gerit munus elevationis; ut oſtendunt lineæ occultæ quæ ex diviſionibus faciei tendunt ad punctum oculi, ex diviſionibus lateris tendunt ad punctum diſtantiæ (puncta oculi ac diſtantiæ in hac & ſequentibus figuris cadunt extra paginam.) Per ſectiones harum linearum ducuntur lineæ quæ terminant ſingulas partes veſtigii deformati; hujuſque adjumento ducitur elevatio lateris, ac methodo conſueta latitudines & longitudines mutuli ſolidi eruuntur ex veſtigio, altitudines ex elevatione. Hic & deinceps nomina longitudinis & altitudinis uſurpamus, veluti planum cujuſlibet perſpectivæ eſſet verticale; in qua ſuppoſitione, I L *eſſet latitudo mutuli,* S R *altitudo,* R L *longitudo: quum* S R *reverà ſit longitudo,* R L *altitudo. Ad faciliorem deſcriptionem hujus figuræ obſervandum eſt, rectis* I L, L M, G H, *hujus paginæ ineſſe diviſiones rectarum* D C, F E, A B, *figuræ ſeptuageſimæoctavæ.*

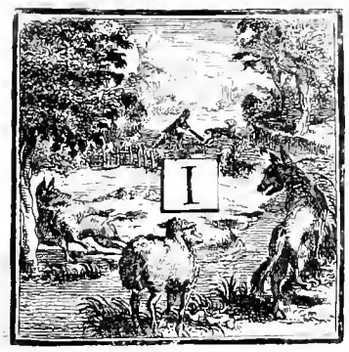
The Seventy-ninth FIGURE.

The Plan and Elevation of a Corbel *in Perſpective.*

THE Face of the Corbel deſcrib'd in the Seventy-eighth Figure, in this does the Office of a Plan; and the Side ſerves here for the Elevation; as is plain from the occult Lines, which from the Diviſions of the Face tend to the Point of Sight, and from thoſe of the Side tend to the Point of Diſtance; both which Points, in this and the ſucceeding Figure, fall without the Plate. From the Interſections of theſe Lines are drawn others, that determine each Part of the Perſpective-Plan; by means of which, the Elevation of the Side being alſo form'd, the Breadths and Lengths of the ſolid Corbel are taken, as uſual, from the Plan, and the Heights from the Elevation. Here and henceforward, the Terms of Length and Height are made uſe of, as tho the Plan of each Perſpective were vertical; according to which Suppoſition, I L is the Breadth of the Corbel, S R the Height, and R L the Length; whereas in reality S R is the Length, and R L the Height. For the more ready Deſcription of this Figure you will do well to obſerve, that the Lines I L, L M, G H, of this Plate, bear the ſame Diviſions as D C, F E, A B, of the Seventy-eighth Figure.

FIGURA Octogeſima.

Horizontalis projectio mutuli inumbrati.



IN hac Figura ſuas umbras mutulo addidimus: eumque ſi in altum ſupra oculum elevaveris, & ex diſtantia quam ipſi dedimus ſuſpexeris; miraberis profectò, in alium longè concinniorem ſubitò mutatum fuiſſe.

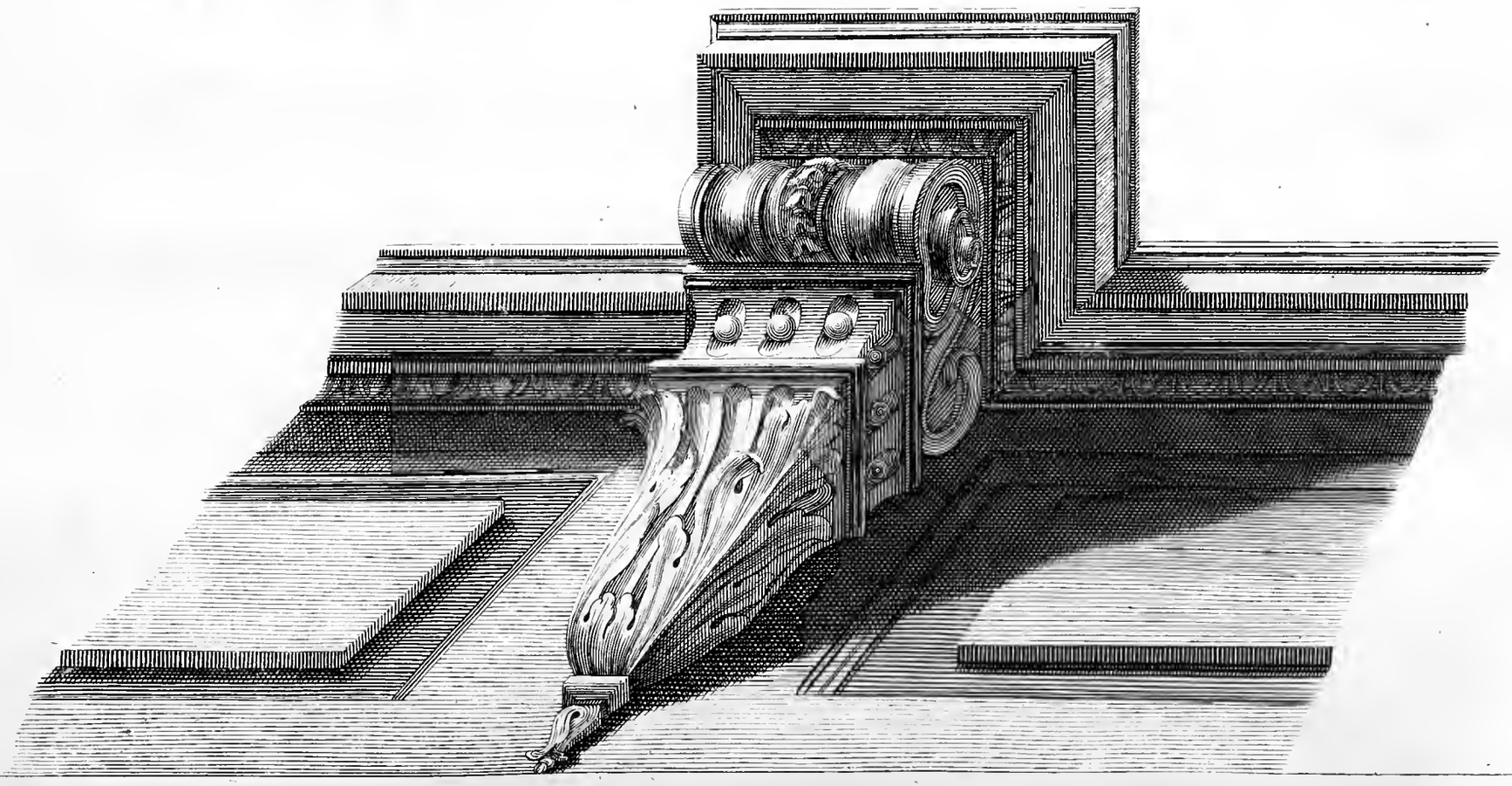
The Eightieth FIGURE.

The Horizontal Projection of a Shaded Corbel.

IN this Figure you have the Corbel finiſh'd with its proper Shades; which, if plac'd above the Eye, and beheld from the Diſtance here aſſign'd it; you'll be ſtrangely ſurpriz'd at the ſudden and moſt agreeable Alteration you'll find therein.

THE GLASGOW
SCHOOL OF ART
LIBRARY

FIG. LXXX.



THE GLASGOW SCHOOL OF ART LIBRARY

FIG. LXXXI.

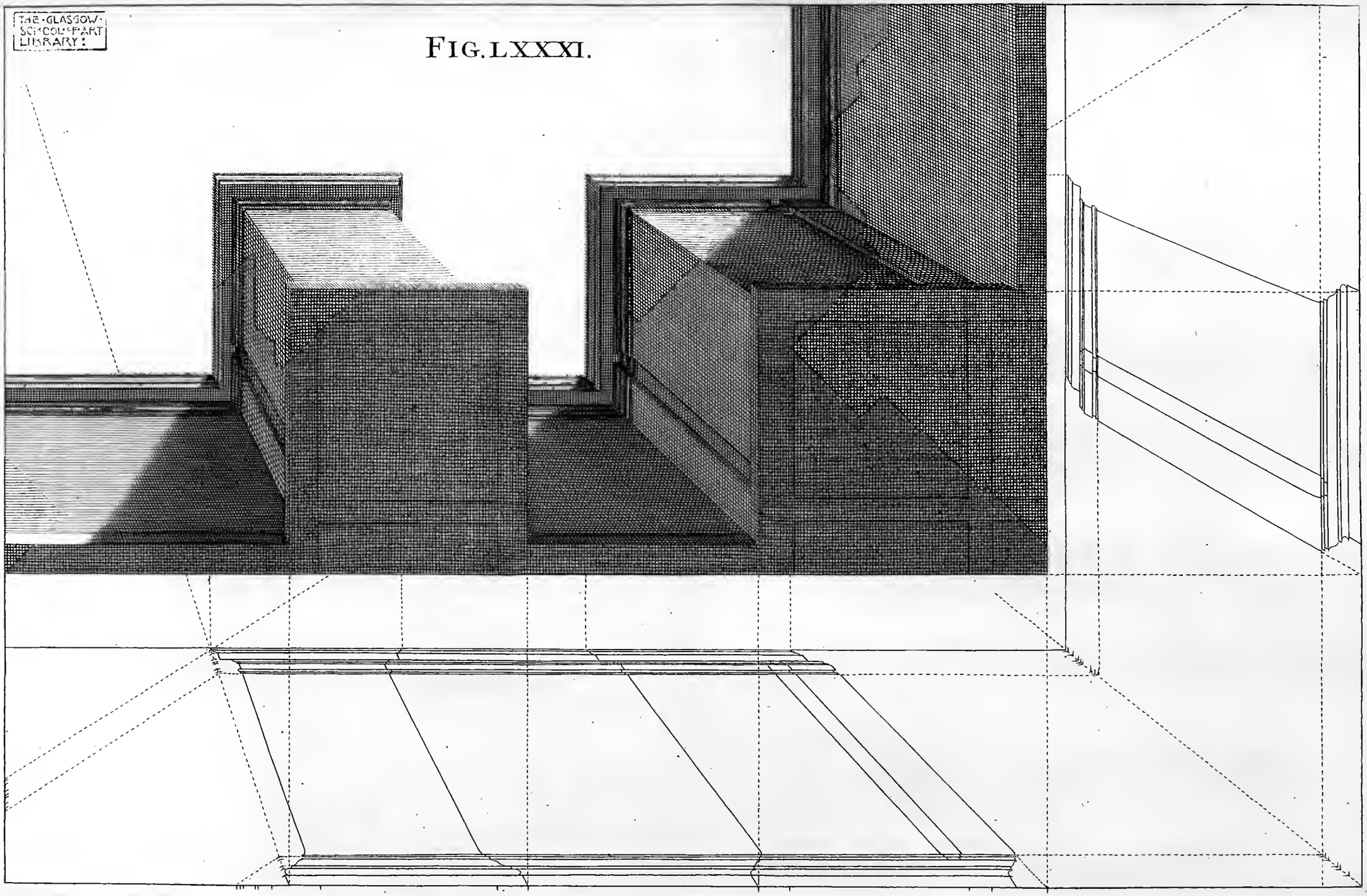
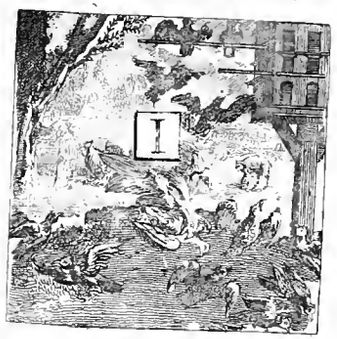


Figura Octogeſimaprima.

Stylobatæ CORINTHII horizontaliter contracti.



IN deformandis hiſce ſtylobatis, uſi ſumus projectione veſtigii & elevationis, quam exhibet Figura Duodecima; ut figuram illam cum iſta conferenti manifeſtiſſimè conſtabit. Porrò ſtylobatas pingi ſolere incumbentes mutulis, diximus figurâ ſeptuageſimaoctavâ.

The Eighty-firſt Figure.

CORINTHIAN *Pedeſtals in an Horizontal Perſpective.*

IN delineating theſe Pedeſtals, I have made uſe of the Plan and Upright put into Perſpective in the Twelfth Figure; as will evidently appear, by comparing that Figure with this. I have already mention'd, in the Seventy-eighth Figure, that in painting theſe Pedeſtals, they are generally ſuppos'd to be upheld by Corbels.

Fig Octogeſimaſecunda.

Columna CORINTHIA horizontaliter deformata.

ESTIGIUM & elevatio ſtylobatæ, quem delineavimus figurâ duodecimâ, ſuppeditat menſuras pilarum hoc loco deformandarum, ut ex iis eruatur contractio columnæ. Huic autem ſoli ſuas umbras addidimus, ut clariùs appareat modus & artificium totius operationis. Ex his vides, quadrata & circulos in perſpectiva horizontali omninò retinere ſuam figuram, eamque dumtaxat reſtringi paulatim & coarctari: quicquid in contrarium & verbis & penicillo docuerint Pictores nonnulli.

The Eighty-ſecond Fig.

A CORINTHIAN *Column in Horizontal Perſpective.*

THE Plan and Elevation of the Pedeſtal delineated in the Twelfth Figure, gives alſo the Meaſures for reducing theſe Pilaſters into Perſpective; from which the Contraction of the Column is taken. I have ſhadow'd only this laſt, that the Manner of the whole Work might be the more conſpicuous. By this you ſee the Squares and Circles in Horizontal Perſpective always retain their Figures, without any Alteration, ſave that of being gradually diminiſh'd and made leſs; notwithſtanding what ſome Painters have taught and practis'd to the contrary.

THE GLASGOW
SCHOOL OF ART
LIBRARY

FIG. LXXXII.

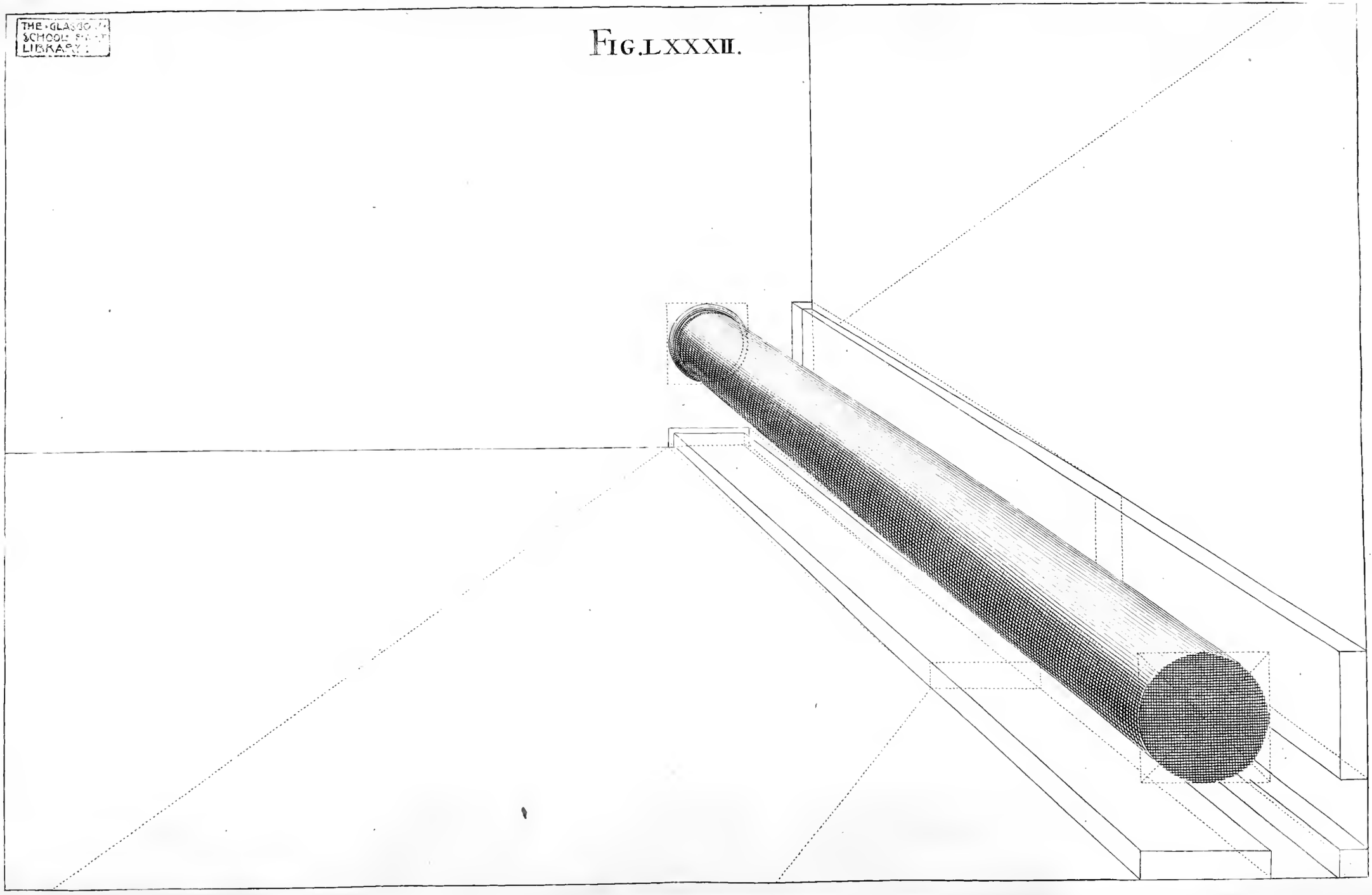
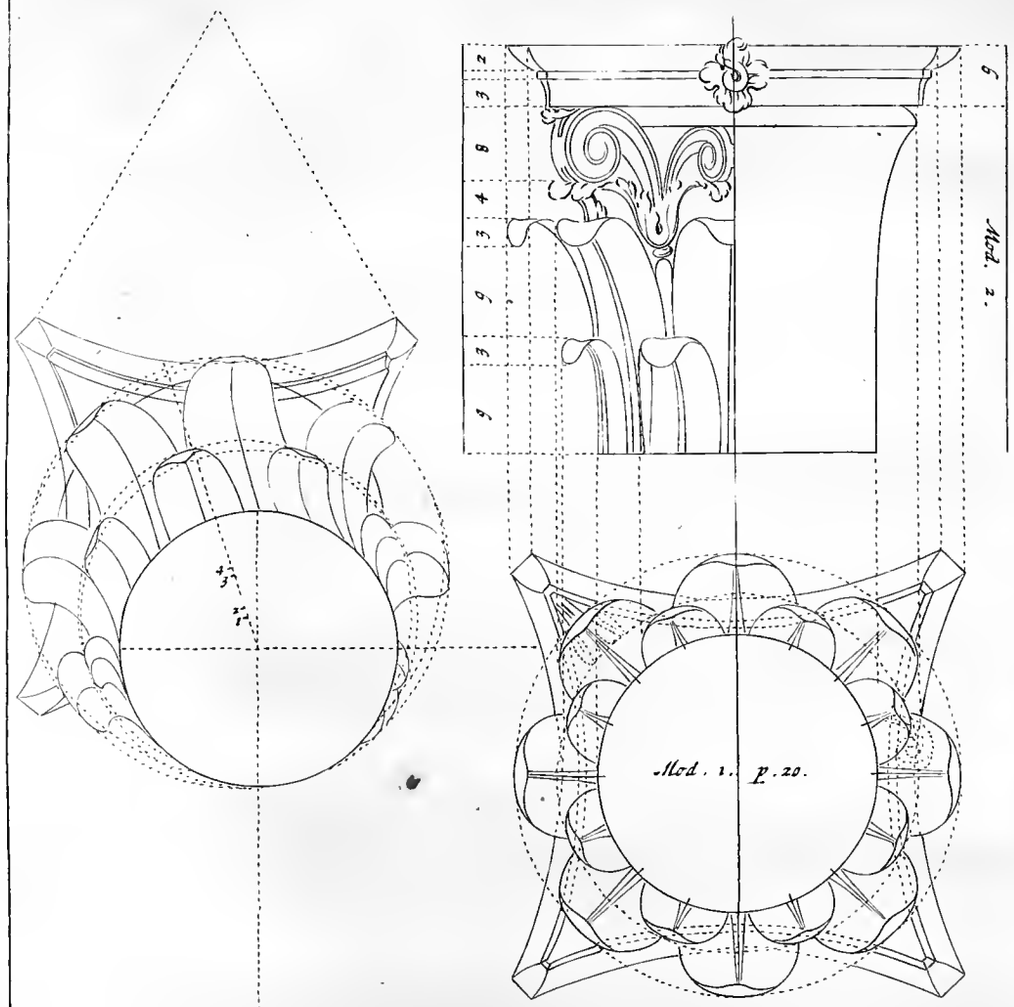
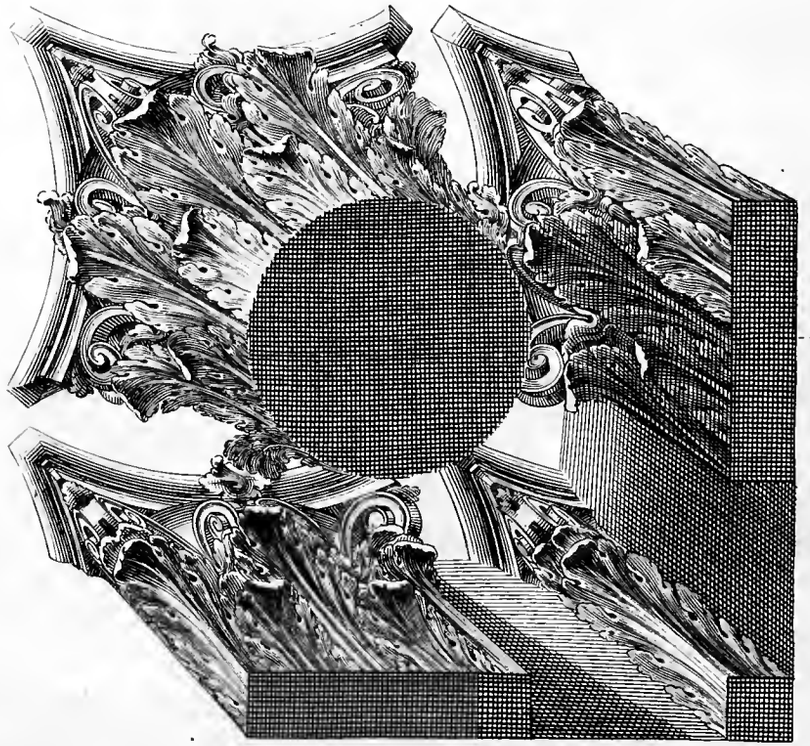
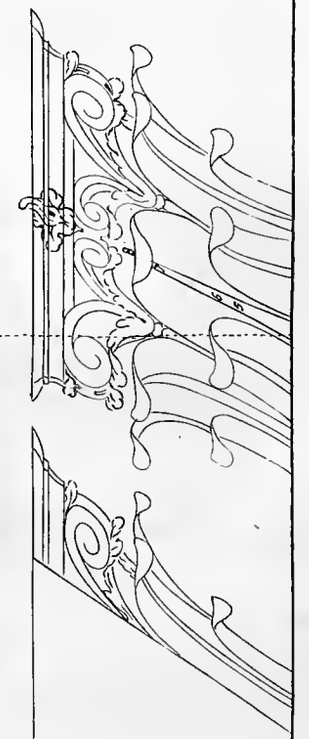
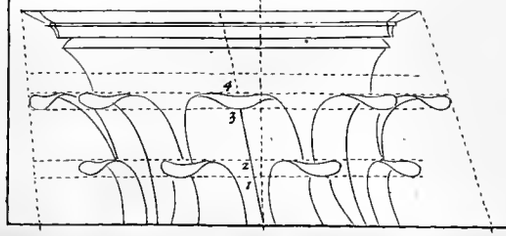


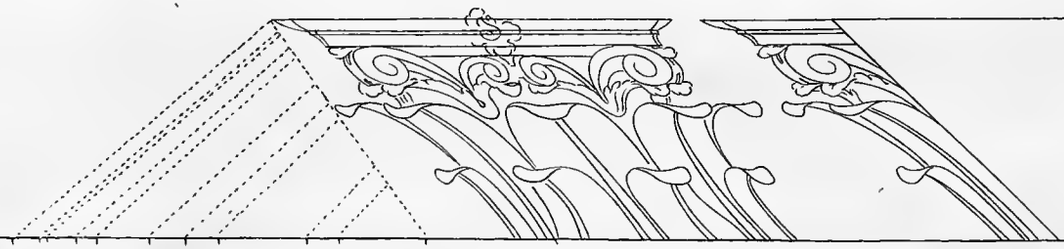
Fig LXXXIII.











THE GLASGOW SCHOOL OF ART LIBRARY

Figura Octogeſimatertia.

Capitella CORINTHIA horizontaliter contracta.

ABES in hac pagina deformationes veſtigii & elevationis capitelli Corinthii, quas deſumpſimus ex delineationibus geometricis, transferendo menſuras earum in lineas plani AB, *& elevationis* AC, *ita ut facillimè dignoſci poſſit unde naſcantur ſingulæ partes capitellorum nitidorum. Nihil dubito quin deformationes horizontales ſis experturus faciliores verticalibus quas dedimus figurâ vigeſimaquartâ. Nam in horizontalibus gyrus foliorum circulis clauditur, quorum centra mutuantur latitudines à ſuis veſtigiis in punctis* 1, 2, 3, 4; *altitudines verò à capitellis elevationis in punctis* 5, 6, 7, 8.

The Eighty-third Figure.

A CORINTHIAN *Capital horizontally contracted in Perſpective.*

YOU have in this Plate the Perſpective both of the Plan and Elevation of the *Corinthian* Capital, drawn from the Geometrical Deſcriptions, by transferring their Meaſures into the Ground-line AB, and into that of the Elevation AC; ſo that you may readily diſcover from whence every part of the finiſh'd Capital is produc'd. I don't doubt but you'll experience theſe horizontal Perſpectives to be much leſs difficult than the vertical propos'd in the Twenty-fourth Figure. For in theſe the Circuit of the Leaves is determin'd by perfect Circles, whoſe Centers take their Breadths from the Plan at the Points 1, 2, 3, 4; and their Heights from the Capitals of the Elevation, at the Points 5, 6, 7, 8.

Figura Octogeſimquarta.

Coronix CORINTHIA.

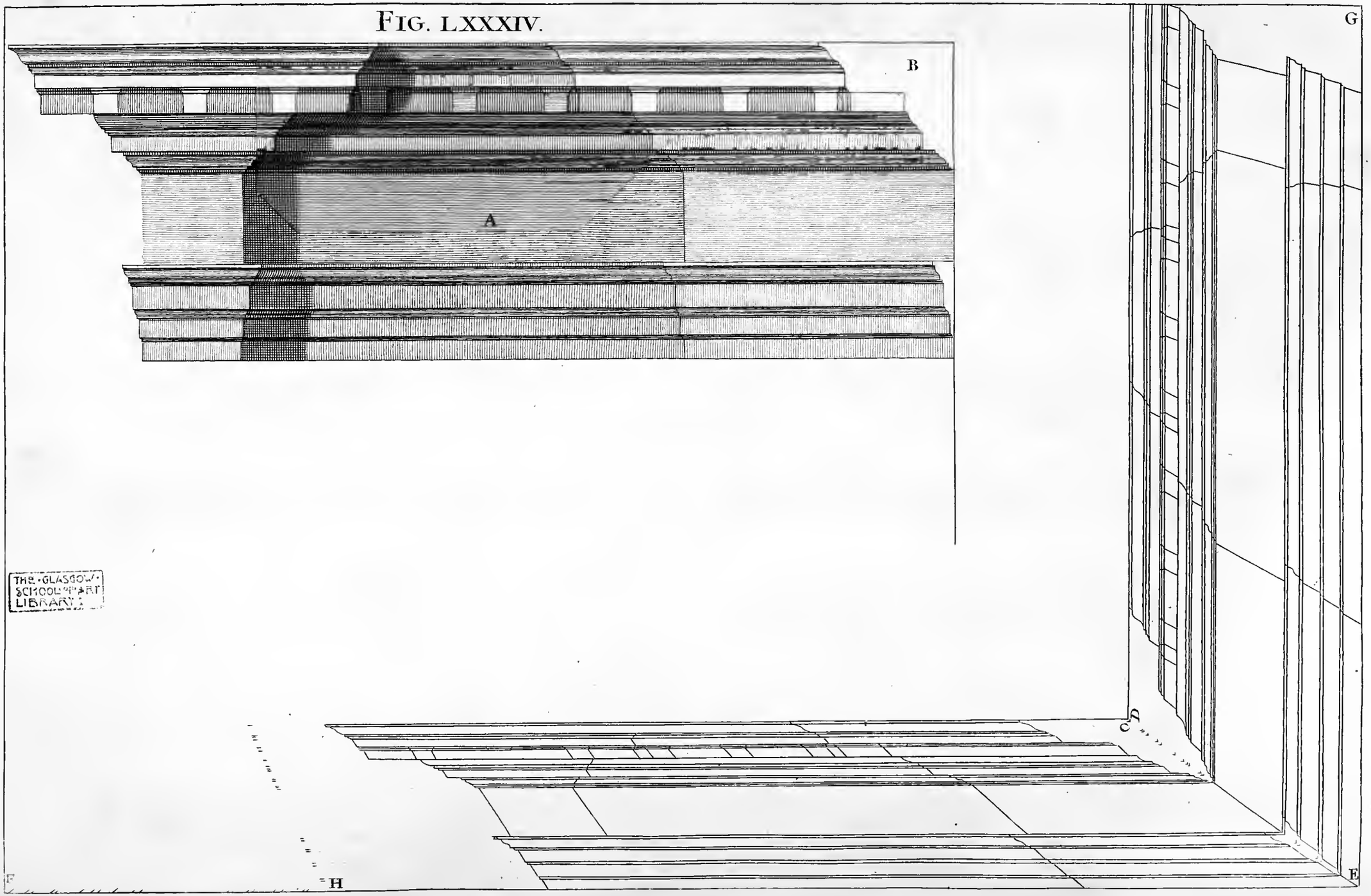
I faciendæ ſint coronices quæ habeant angulos, elevatio geometrica A *repræſentabit unum latus, alterum ſectio* B. *Curandum eſt autem, ut crepidines partium, quas fingere volumus incumbere columnis, non obſint concinnæ diſtributioni mutulorum. Ad contractionem elevationis* A *&* *ſectionis* B, *in lineam plani* EF *&* *elevationis* EG *transferre oportet puncta diverſarum latitudinum, quas habent in elevatione* A *ungues epiſtylii, zophori, & coronæ, ducendo ex iis lineas ad punctum oculi; in partem verè* FH *lineæ* FE *transferre oportet puncta longitudinis, ducendo lineas ad punctum diſtantiæ. Hac induſtriâ perficies utramque deformationem, quarum una geret munus veſtigii, altera elevationis. Utrobique autem deſignabis lineas terminativas partium coronicis, ac ſectionum* C *&* D.

The Eighty-fourth Fig.

A CORINTHIAN *Cornice.*

IF you are to deſcribe Cornices having Angles, admit the elevation A to repreſent one Side, and the Section B the other. But care is to be taken, that the Breaks of thoſe Parts which are ſuppos'd to be ſet directly over the Columns, do not obſtruct the regular Diſtribution of the Modillions. For contracting into Perſpective the Elevation A, and the Section B, you muſt transfer into the Ground-line EF, and into that of the Elevation EG, the Points of the ſeveral Breadths made by the Projectures the Architrave, Freeze, and Cornice of the Elevation A; and from them draw Lines to the Point of Sight: Then on the Part FH of the Line FE, you muſt note the Points of Length, and draw Lines from them to the Point of Diſtance. By this Practice you complete theſe two Contractions, one of which does the Office of a Plan, the other that of an Elevation. It's alſo requiſite, that you draw the Out-line of the Members of the Cornice on each ſide the Angle, and the Sections C and D.

FIG. LXXXIV.



THE GLASGOW SCHOOL OF ART LIBRARY

THE GLASGOW SCHOOL OF ART LIBRARY

FIG: LXXXV.

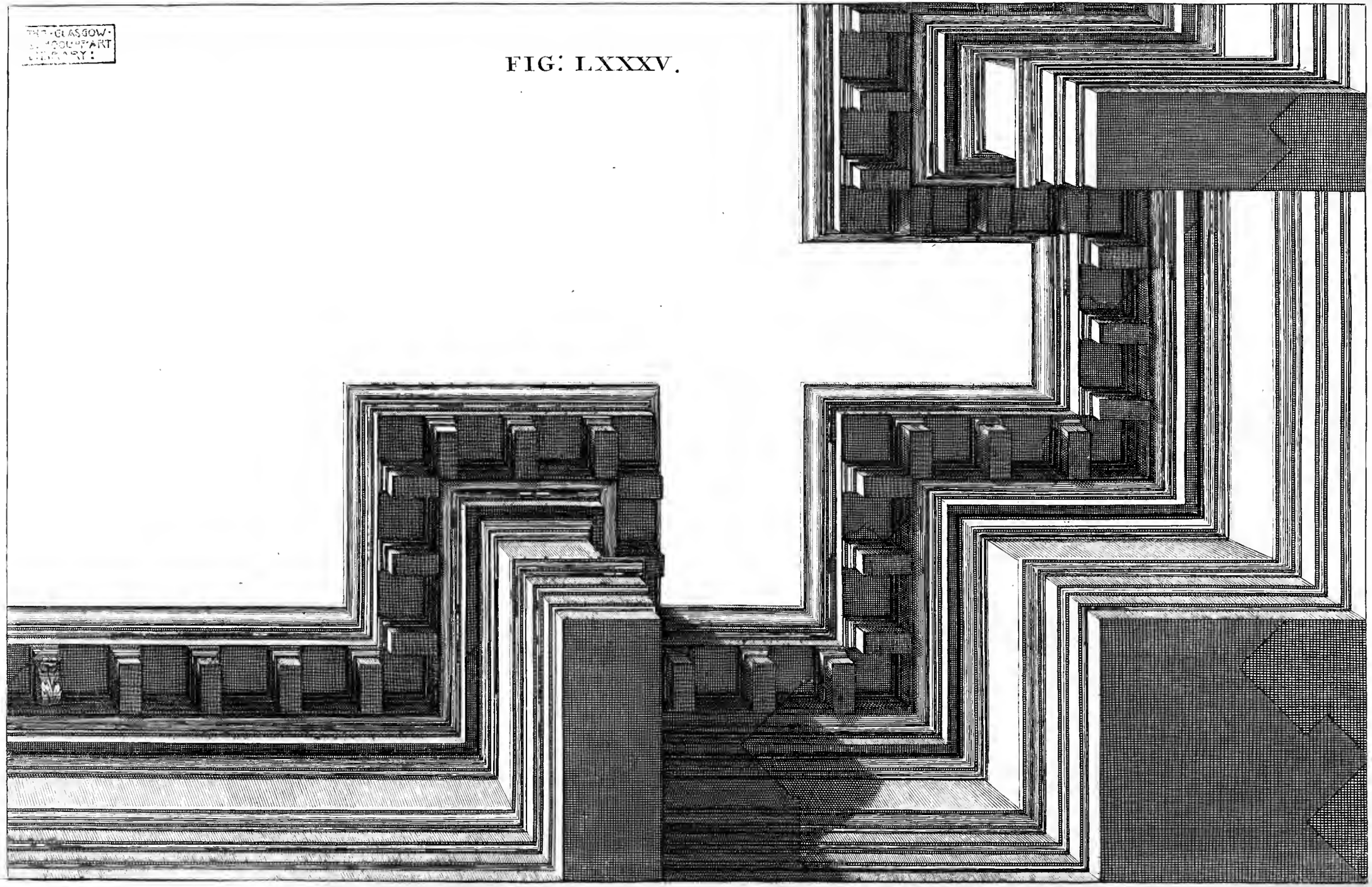


Figura Octogeſimaquinta.

Coronix CORINTHIA horizontaliter contracta.

OLIDITAS coronicis cum omnibus projecturis eruta eſt ex veſtigio & elevatione figuræ octogeſimæquartæ. Hic autem finem imponimus partibus rerum, ad integra ædificia gradum facturi.

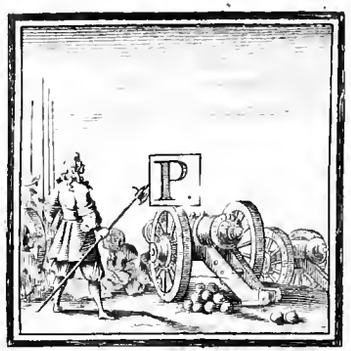
The Eighty-fifth Figure.

A CORINTHIAN *Cornice in horizontal Perſpective.*

THE Solidity of this Cornice, with all its Projectures, is deduc'd from the Plan and Elevation of the foregoing Figure. With this therefore I ſhall conclude the Deſcription of Parts of things, and proceed to that of entire Structures.

Figura Octogeſimaſexta.

Horizontalis projectio Columnæ.



OSTQUAM ſigillatim deſcripſimus mutulum, ſtylobatam, columnam & coronicem, omnia iſta conjungere placuit: ita clariùs apparebit quomodo diſponere oporteat delineationes geometricas, ut ex iis eruantur projectiones horizontales.

Linea plani eſt CD, *perpendicularis* CI. *In* A *eſt elevatio geometrica longitudinis columnæ, (ſupponimus columnam delineari veluti jacentem humi.) In* B *ejus veſtigium geometricum, cum diviſionibus latitudinis in lineâ* ER. *Puncta longitudinis transferentur in lineam plani* CG, *puncta altitudinis* EC *transferentur in* CF, *ducendo rectas ex diviſionibus* CG *ad punctum diſtantiæ, ex diviſionibus* CF *ad punctum oculi. Per ſectiones verò viſualis* CO *erigentur perpendicula, & complebitur elevatio* H, *ex quâ eruetur columna nitida* L.

Si ſuper veſtigio M *formare placeat aliam columnam, ejus latitudines accipiendæ ſunt ex columna* B; *ac ſectio projicienda eſt in* N, *ut ex hac tamquam ex elevatione eruatur columna* P. *Si aliam columnam in angulo addere libitum fuerit, ope ſectionum* HN *facilè illam complebis.*

The Eighty-ſixth Figure.

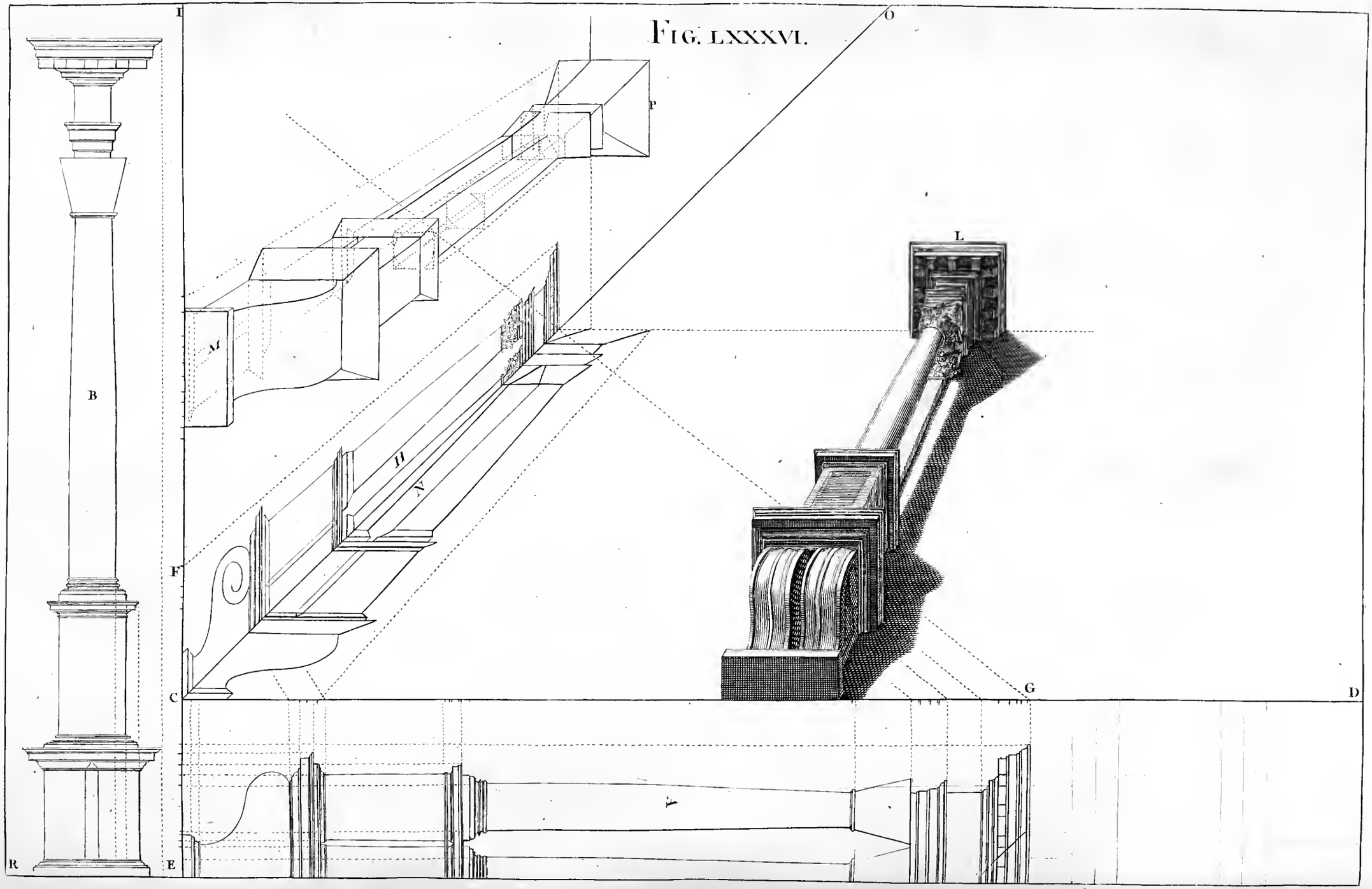
A Column in horizontal Perſpective.

AFTER the ſeparate Deſcription of a Corbel, Pedeſtal, Column, and Cornice; I have here conjoin'd them all, that you might the better perceive how to diſpoſe Geometrical Elevations for the Buſineſs of horizontal Perſpective.

The Line of the Plan is CD, the Perpendicular CI; the Geometrical Elevation of the Length of the Column, ſuppos'd to be lying on the Ground, is A. The Geometrical Plan thereof is B, with the Diviſions of its Breadth on the Line ER. The Points of Length being transferr'd on the Line of the Plan CG, and the Points of Height EC into CF; from the Diviſions of CG Lines are drawn to the Point of Diſtance; and from thoſe of CF to the Point of Sight. From the Sections of the Viſual CO, Perpendiculars are erected, and the Elevation H completed, from whence is taken the finiſh'd Column L.

If upon the Plan M you would delineate another Column, the Breadths thereof muſt be taken from the Column B, and another Profile deſign'd in N, which ſerves as an Elevation for making the Column P. If another Column were requir'd in the Angle, the Profiles HN aſſiſt you in the ready Performance thereof.

Fig. LXXXVI.



UNIVERSITY OF GLASGOW
DEPARTMENT
OF MUSIC

FIG. LXXXVII.

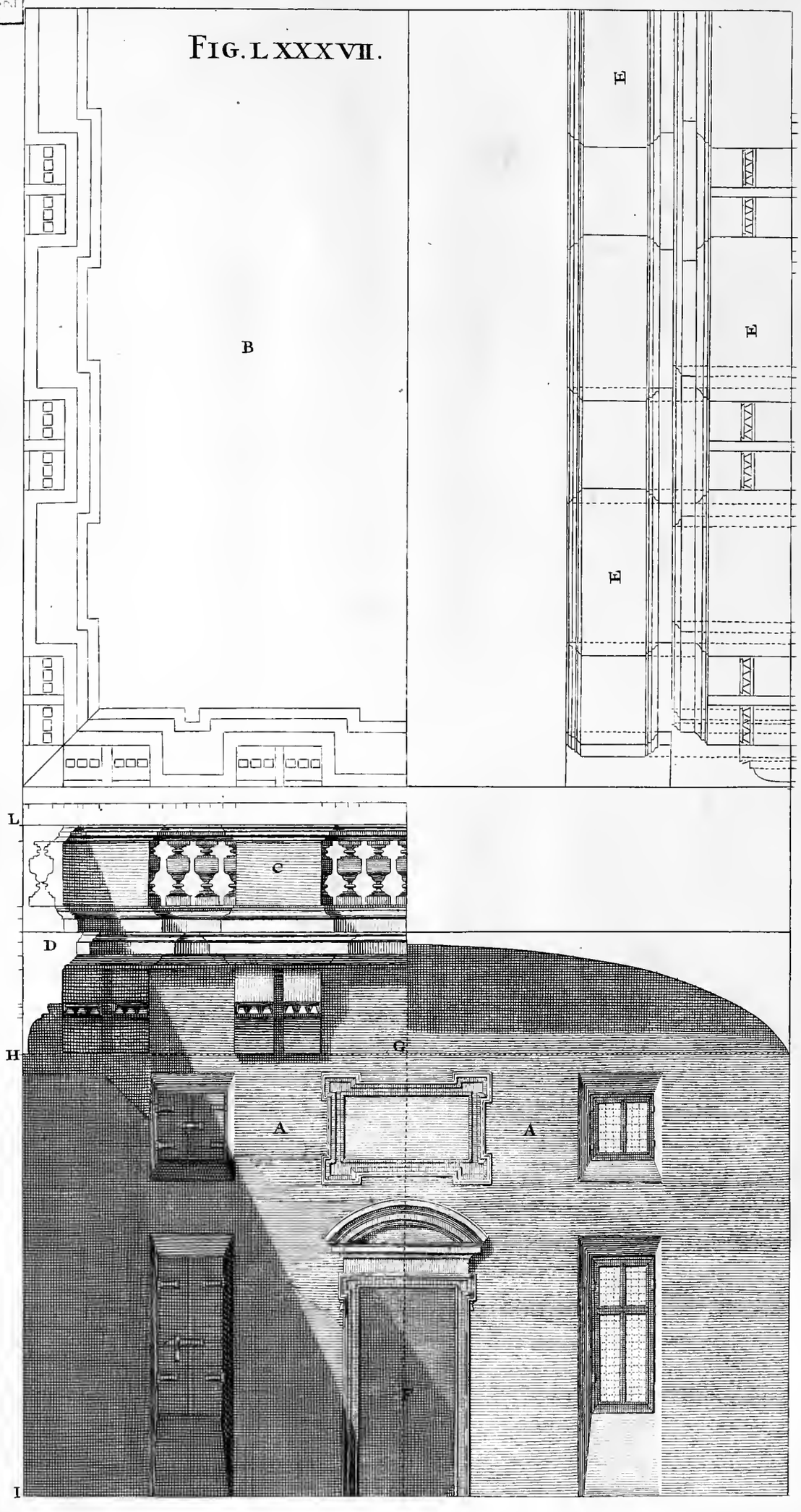


FIGURA Octogeſimaſeptima.

Præparatio neceſſaria ad ſequentem figuram, & ad projectiones horizontales in laquearibus vel teſtudinibus.

EXHIBET hæc figura in AA *unum ex quatuor parietibus aulæ, cujus altitudinem veram* IH *velis attollere apparenter uſque in* L, *pingendo in laqueari, vel in teſtudine, ſeriem balauſtiorum. In* B *eſt veſtigium geometricum quartæ partis laquearis. In* C *habetur elevatio medietatis latitudinis. In* D *eſt ſectio coronicis & mutulorum. In* E *poſita eſt elevatio medietatis longitudinis. In* F *eſt punctum oculi, in* G *punctum diſtantiæ: adeóque tota diſtantia eſt* GF.

The Eighty-ſeventh FIGURE.

The Preparation neceſſary to the following Figure, and to all other horizontal Perſpectives, whether on flat or vaulted Cielings.

27

HE Figure AA repreſents one of the four Walls of a Hall, whoſe true Height IH you would have appear rais'd to L, by painting a Baluſtrade in the Cieling thereof. B is the Geometrical Plan of the fourth part of the ſaid Cieling; C is the Elevation of half the Breadth; D is the Section of the Cornice and Corbels; E is the Elevation of half the Length. In F is the Point of Sight, in G the Point of Diſtance; ſo that the Diſtance itſelf is FG.

Figura Octogeſimaoctava.

Horizontalis projectio balauſtiorum Figuræ octogeſimæſeptimæ, cum brevi diſtantia.

LARITATIS gratiâ totum laquear diviſum eſt in quatuor partes. Prima *continet contractionem veſtigii & elevationis, quæ perficiuntur methodo conſueta. Nam linea* AOV *eſt horizontalis,* BC *eſt linea plani. Punctum oculi eſt* O, *diſtantiæ* E. Secunda *pars continet ſectionem* L, *quæ dat projecturas mutulorum aliarumque partium, deſumendas ex ſectione* D *figuræ octogeſimæſeptimæ, deformando eam in angulis* B *&* C. Tertia *pars complectitur delineationem integram ſine umbris*: ultima *pars eandem complectitur cum umbris.*

Ob punctum diſtantiæ parum remotum à puncto oculi, nimiam amplitudinem ac deformem apparentiam habere videtur hæc delineatio. Nihilominus, ſi ex diſtantia EO *figuram ſuſpexeris, omnis deformitas evaneſcet.*

Ut fucus imperitis fiat, induſtrii Pictoris intereſt parare ſibi geminum exemplar ſuorum Operum, in quibus diſtantia ſit nimis brevis; unum videlicet palam oſtendendum, in quo punctum diſtantiæ ſit remotum à puncto oculi, quantum neceſſe eſt ad vitandam omnem deformitatem. Alterum verò, in ipſomet Opere clam uſurpandum.

Si pigendæ ſint teſtudines, oportet prius facere in eis reticulationem peculiarem; quæ quia difficilis eſt, & paucis explicare nequit, in aliud Opus reſervatur.

The Eighty-eighth Figure.

The horizontal Projection of the Baluſtrade of the Eighty-ſeventh Figure, view'd at a ſmall Diſtance.

FOR the better Illuſtration of this Figure, I have divided the whole Cieling into Four Parts. The *Firſt* contains the Plan and Elevation in Perſpective, after the uſual manner; AOV being the horizontal Line, BC that of the Plan; the Point of Sight O, and that of Diſtance E. The *Second* Part contains the Section L, which gives the Projectures of the Corbels and other Parts taken from the Section D of the Eighty-ſeventh Figure, by drawing it in the Angles B and C. The *Third* Part comprehends the delineation of the Perſpective without Shadows. The *Fourth* Part contains the ſame wholly ſhadow'd and finiſh'd.

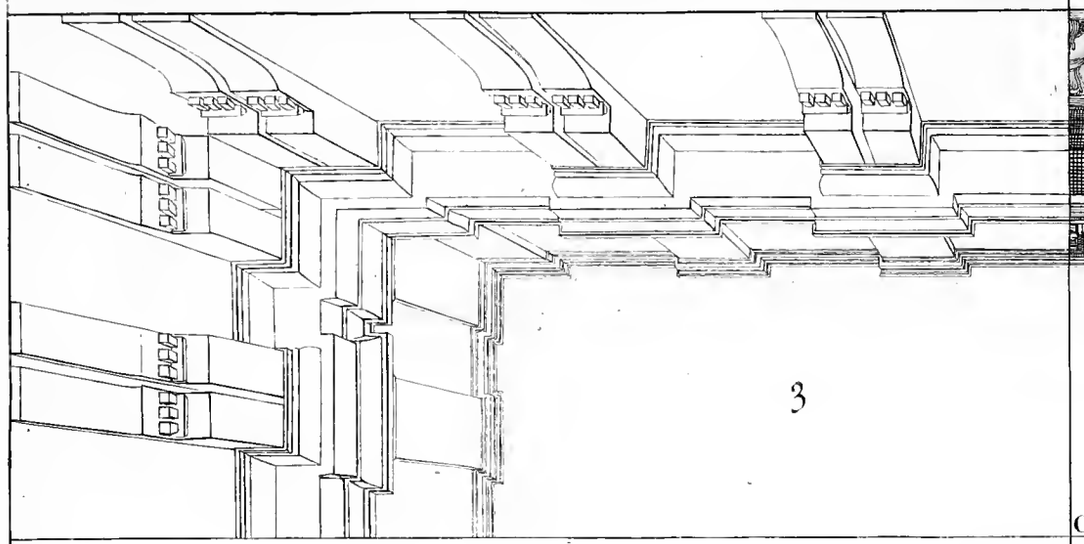
Thro' the near Approach of the Point of Diſtance to the Point of Sight you may perhaps imagine this Draught will appear too wide, and ſo have an ill Effect: But when once you view it from its due Diſtance EO, you will find all ſuch Doubts vaniſh and come to nothing.

When you have to deal with Perſons unskill'd in theſe things, and are to paint for ſo ſmall a Diſtance; your beſt way is to make two Draughts; one for publick Shew, in which you may place the Point of Diſtance ſo far from the Point of Sight, as is neceſſary for preventing Deformity; and the other you may privately make uſe of in performing your Work.

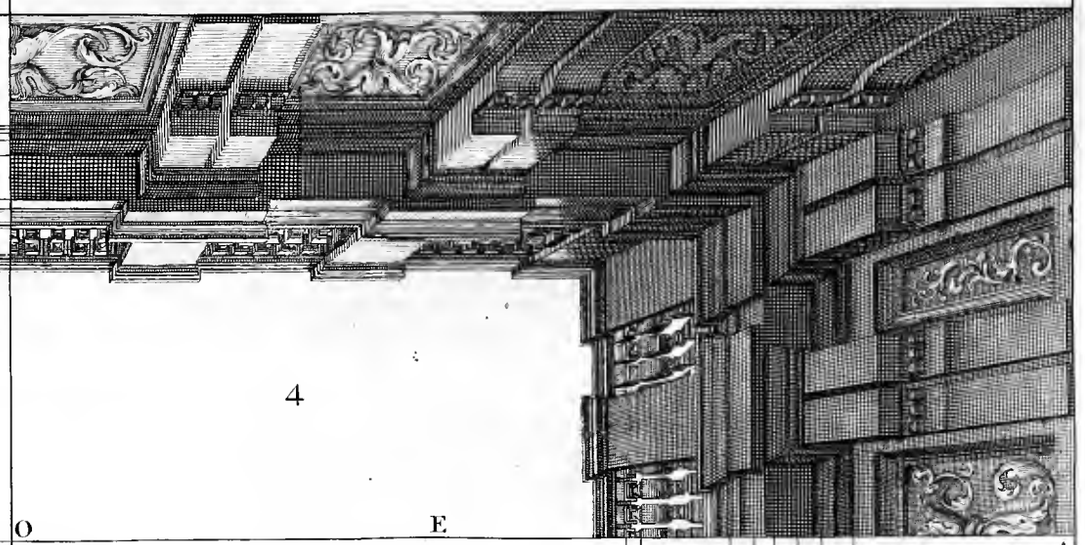
If you are to paint arch'd or vaulted Cielings, a particular kind of Net or Lattice-Work muſt firſt be made therein; the Performance whereof being difficult, and not capable of being explain'd in few Words, I have reſerv'd it for another Volume.

Fig. LXXXVIII.

THE GLASGOW SCHOOL OF ART LIBRARY



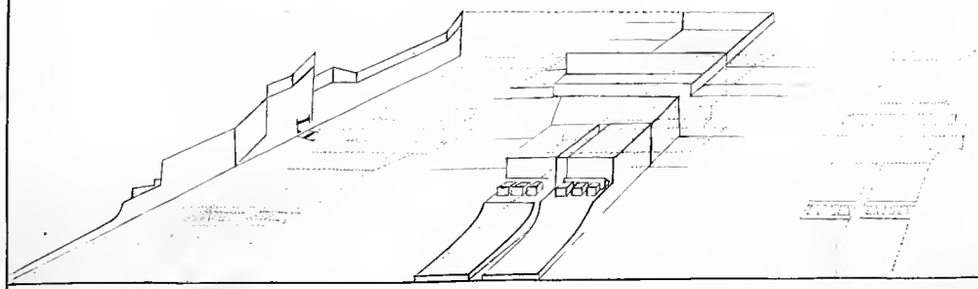
3



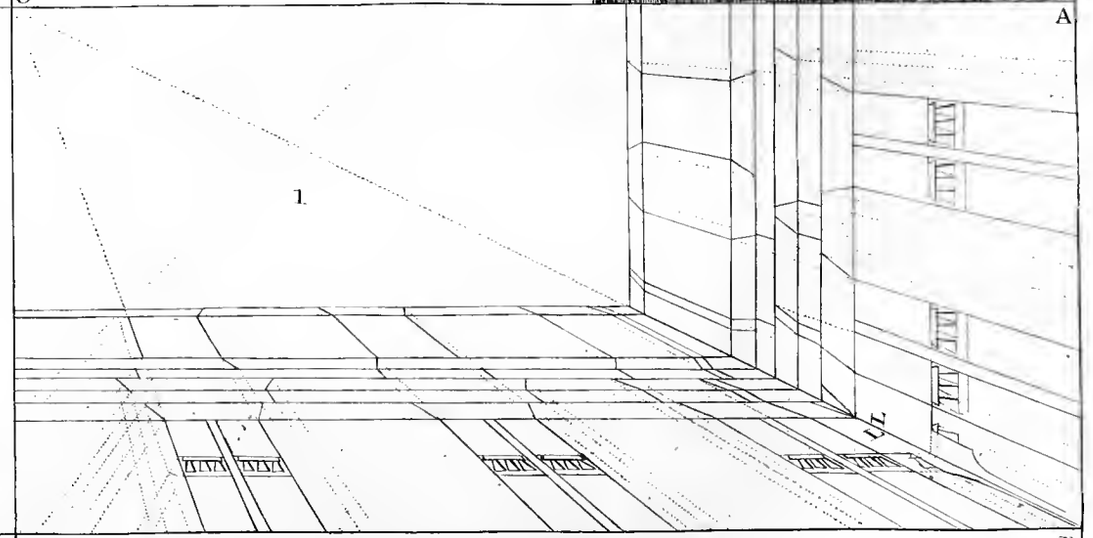
4

O E A

V



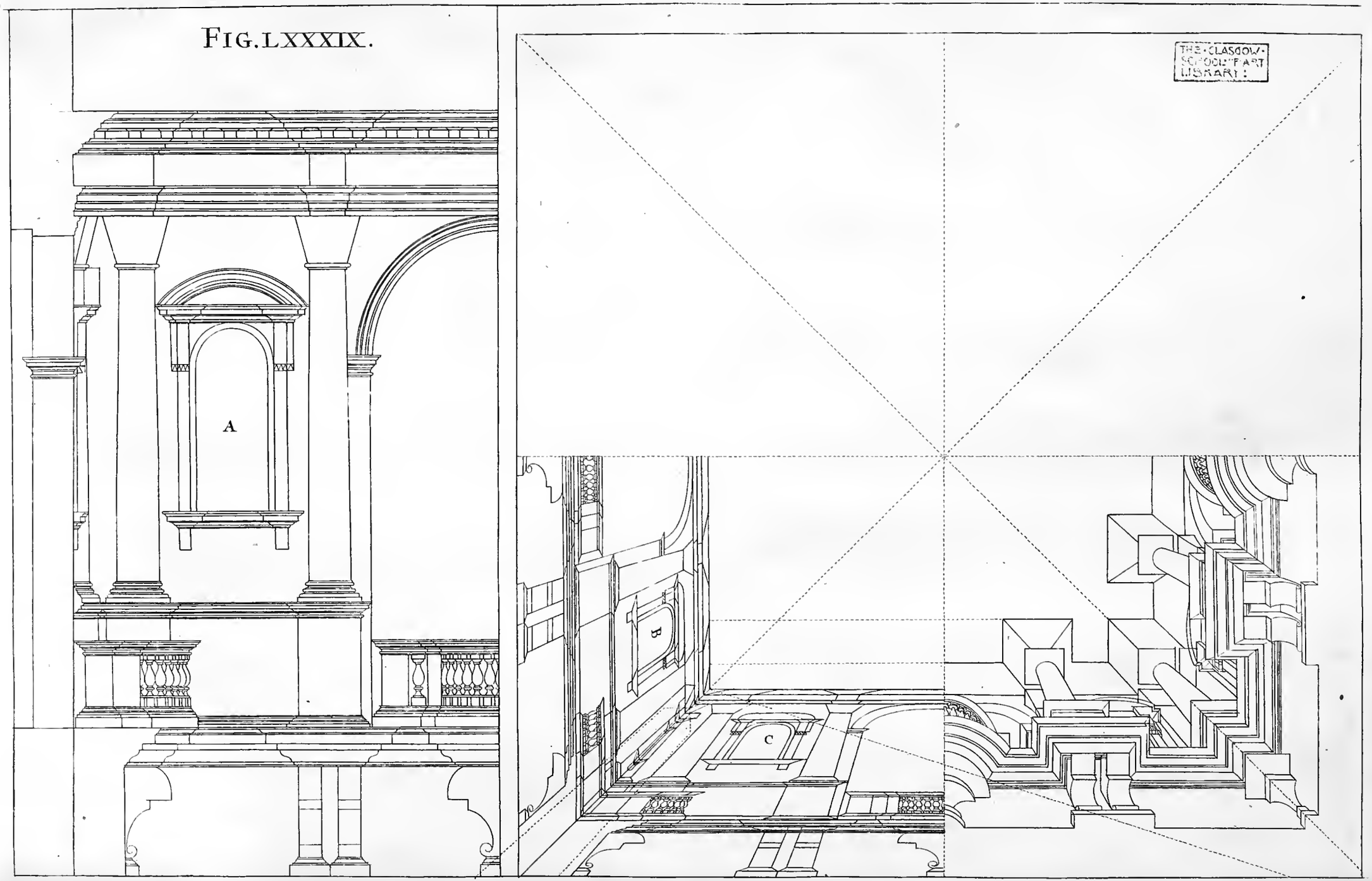
2



1

B

FIG. LXXXIX.



THE · GLASGOW ·
SCHOOL · OF · ART
LIBRARY

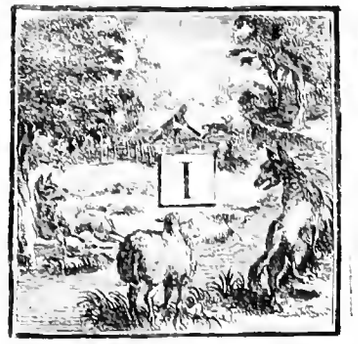
Figura Octogeſimanona.

Horizontalis projectio architecturæ in laqueari quadrato.

I laquear ſit quadratum, & valde diſtans ab oculo, architecturam huic ſimilem in eo depingere licebit. A eſt elevatio geometrica; eadem verò deformata in B *&* C, *gerit munus veſtigii & elevationis. Medietas unius ex quatuor partibus, uſui eſſe poteſt in toto opere, aut premendo chartam, aut eâ perforatâ, immittendo per foramina carbonem minutiſſimè contuſum.*

The Eighty-ninth Figure.

An horizontal Projection of Architecture in a ſquare Cieling.



IF the Ceiling be ſquare, and very remote from the Eye, you may paint in it ſome ſuch Piece of Architecture as this. A is the geometrical Elevation; the ſame reduc'd into perſpective in B and C does the Office of a Plan and Elevation. The Half of one of the four Parts may ſuffice for the Draught of the whole Work, either by tracing over the Lines of the Paper, or by pricking ſmall Holes therein, and pouncing them through with Charcoal finely powder'd.

FIGURA Nonageſima.

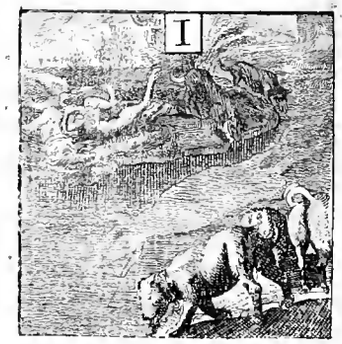
Horizontalis projectio tholi.

NITIUM hujus rei fiet à veſtigio geometrico, in quo duæ ſeries circulorum deſignant columnas; aliæ lineæ deſignant ſtylobatas, ac projecturas & ungues baſium & coronicum. Linea plani eſt AB, *horizontalis* CD, *perpendicularis* AD. *Punctum oculi eſt* O, *diſtantiæ* D; *adeóque figura hæc debet habere ſupra oculum altitudinem* DO. *Punctum oculi poſitum fuit extra ipſum tholum, ut qui eum aſpiciunt, minus defatigentur, ac plus appareat de architectura & de artificio; ſecus verò contingeret ſi punctum oculi eſſet in medio. Itaque puncta lineæ* EF *transferentur in* AG *partem lineæ* AD. *Centrum* I *veſtigii transferetur in* H, *& ex omnibus his punctis fient viſuales ad* O. *Deinde altitudine tholi, ac diviſionibus partium ſingularum tum ipſius, tum laternæ, tranſlatis in lineam* AB, *ex punctis diviſionum fient rectæ ad punctum diſtantiæ* D. *Ubi autem hæ ſecant viſualem* AO, *erigentur perpendicula, quorum ſectiones cum viſuali* HO *dabunt centra pro ſingulis circulis. Inter viſuales* AG *ducere oportet lineas terminativas columnarum & coronicum; quemadmodum fieret, ſi ex veſtigio eruta fuiſſet elevatio geometrica. His poſitis, aggredieris delineationem opticam ipſius tholi, tranſlatis in perpendicularem* EO *centris ope parallelarum* HI, LN; *ac ſemidiametro* LM *fiet circulus* NP *pro ſima coronicis: ſemidiametro* ST *fiet circulus* QR, *& ſic de reliquis. Quomodo autem per rectas ex angulis veſtigii ad punctum oculi, habeantur ungues coronicis, oſtendunt numeri* 1, 2, 3, 4; *lineæ verò laterales unguium tendunt ad centra ſuorum circulorum, ut videre eſt in* N. 3, 4. *In veſtigio, ne nimium occupetur, mutulos omiſimus.*

Ex his patet neceſſitas faciendi veſtigium geometricum totius tholi, ac non ſufficere veſtigium unius columnæ; quum ſingulæ peculiares exigant deformationes. Quum autem Opus ipſum delineandum ac pingendum fuerit, ipſum deſumere non poteris ex parvo exemplari, ope reticulationis: Quinimo ſuis locis ducere oportebit lineas viſuales, & invenire centra omnium circulorum. Figendo autem funiculum in ſingulis centris, ipſius adjumento facillimè abſolves omnes circumferentias.

The Ninetieth Figure.

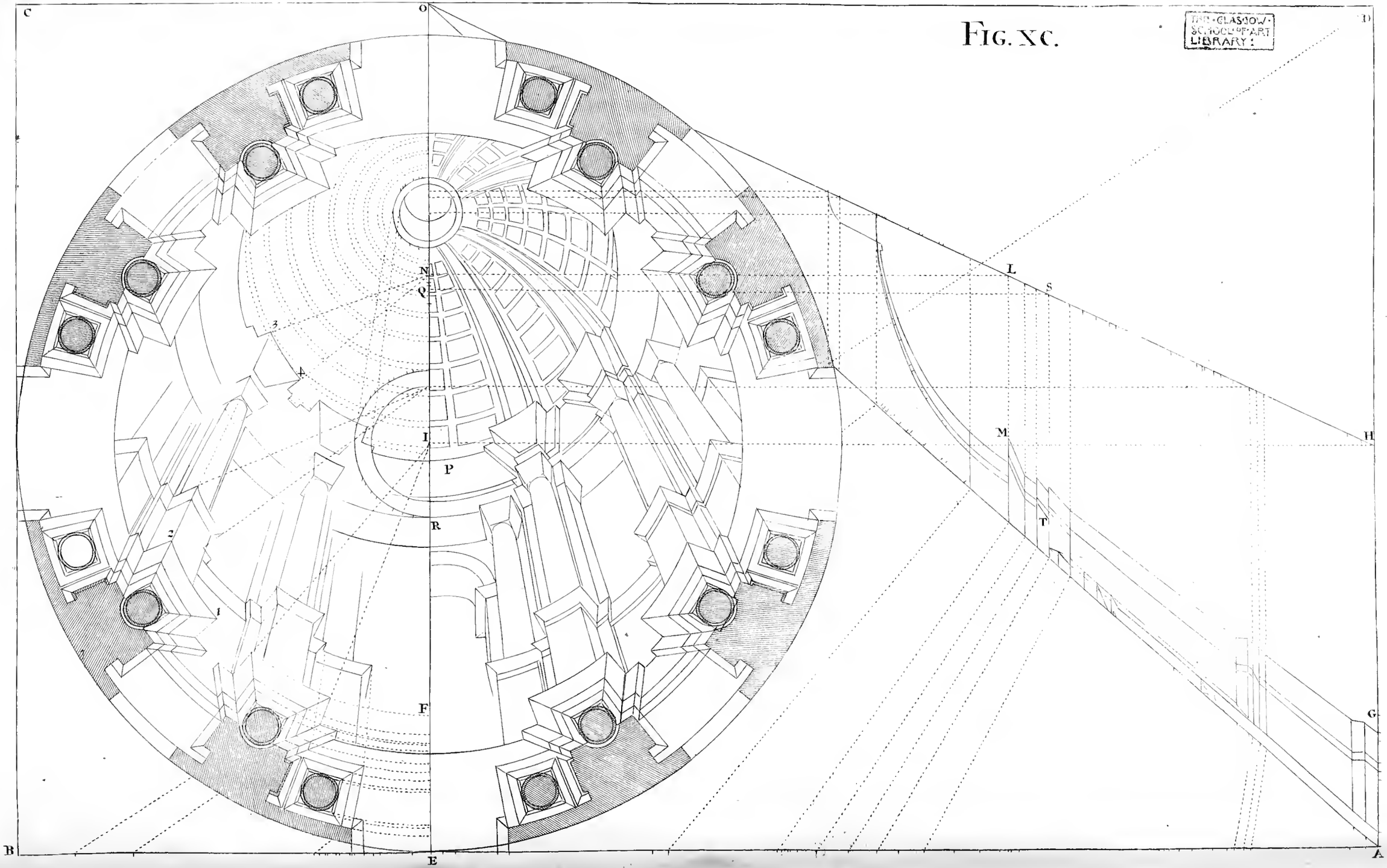
A Cupola in horizontal Perſpective.



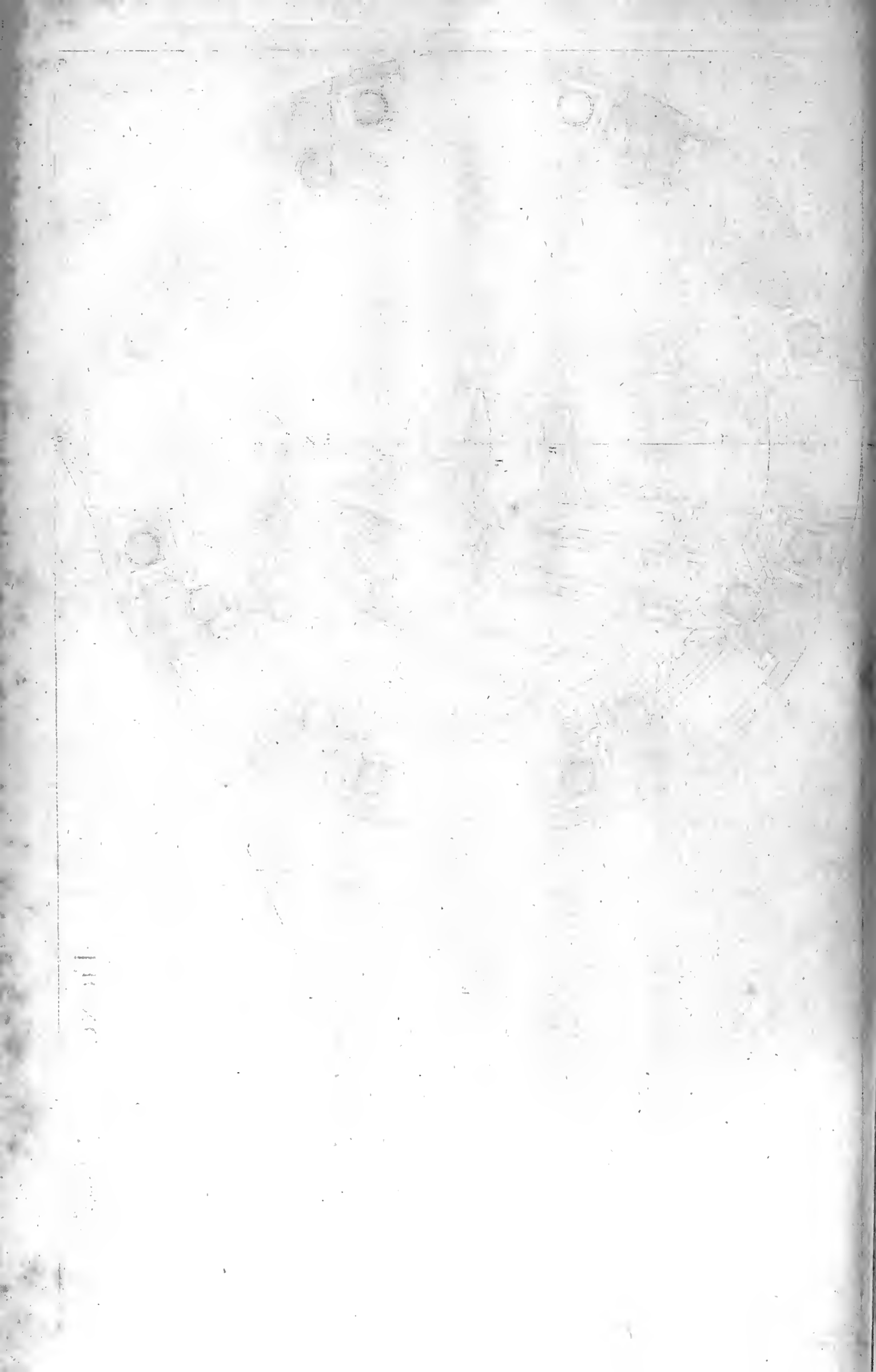
IN the Execution of this Work, you are to begin with the Geometrical Plan; in which the two Ranges of Circles denote the Columns, the other Lines ſhew the Pedeſtals, with the Projectures and Breaks of the Baſes and Cornices. The Line of the Plan is AB, that of the Horizon CD, the perpendicular Line is AD. The Point of Sight is O, that of Diſtance D; wherefore this Figure ought to be plac'd as much above the Eye, as the Height DO. I have ſet the Point of Sight ſomething without the Cupola, that the Eye might be leſs weary'd in viewing the Work, and take in more of the Architecture, than it could have done, had the Point of Sight been in the midſt. The Points of the Line EF are transferr'd into AG, part of the Line AD. The Centre of the Plan I is continu'd to H, and from all theſe Points viſual Lines are drawn to O. Then placing the Heights of every part both of the Cupola and Lantern on the Line AB, from the Points of thoſe Diviſions draw Lines to the Point of Diſtance D; and where they cut the Viſual AO, erect Perpendiculars interſecting the Line HO; which Points are the Centres of the ſeveral Circles. On the Viſuals, between AG, muſt be deſcrib'd the Out-lines of the Columns and Cornices, in like manner as when a Geometrical Upright is rais'd from a Plan. This done, you proceed to the Delineation of the Cupola itſelf in Perſpective, by transferring into the Perpendicular EO the ſeveral Centres of HO, by Parallels to HI, as LN, *&c.* On the Centre, with the Interval LM, deſcribe the Circle NP, for the Noſe of the Cornice; and with the Semidiameter ST deſcribe the Circle QR, and ſo of the reſt. The Numbers 1, 2, 3, 4, ſhew how the Breaks of the Cornice are determin'd by Lines from the Angles of the Geometrical Plan tending to the Point of Sight, till they interſect the Circle: The Returns of which Breaks are made by Lines tending to the Centres of their reſpective Circles; as is plain from N. 3. and N. 4. In this Plan I have omitted the Corbels, leſt I ſhould too much incumber the Work.

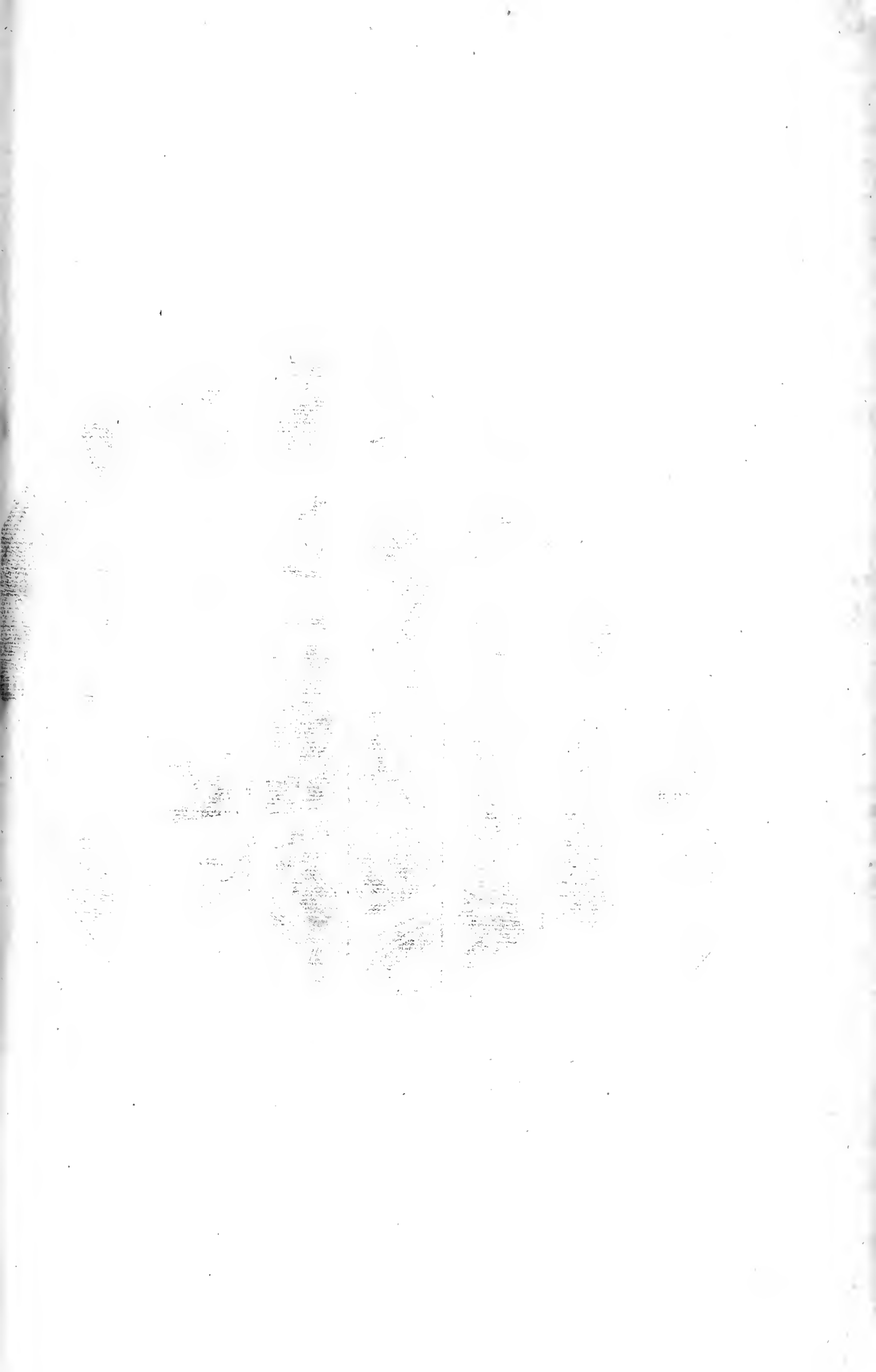
Hence appears the Neceſſity of making the Geometrical Plan of the whole Cupola, the Plan of a ſingle Column not being ſufficient; by reaſon each requires its particular Delineation. And when the Work itſelf is to be drawn for painting, you can't well take it from a ſmall Draught by way of Net-work or Squares, but the viſual Lines ſhould be drawn in their proper places, and their ſeveral Centres found; in which, by fixing Strings, you may readily deſcribe the Circumferences of all the Circles.

Fig. xc.



THE GLASGOW SCHOOL OF ART LIBRARY





THE GLASGOW SCHOOL OF ART LIBRARY

FIG. XCI.

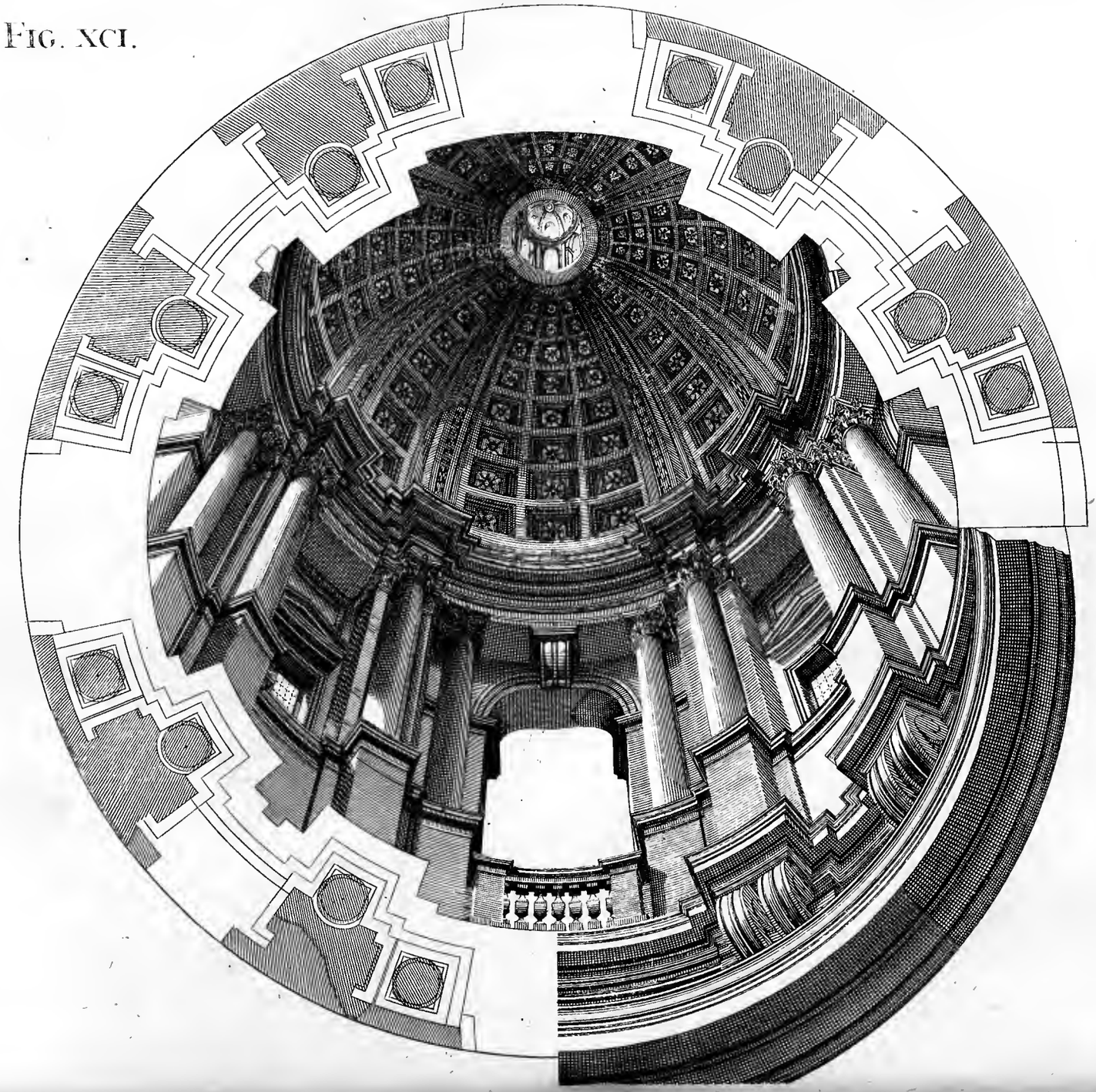


Figura Nonageſimaprima.

Tholus Figuræ nonageſimæ, cum luminibus & umbris.

THOLUS quem vides in hac pagina, pollicetur ſibi vitam diuturniorem illo, quem ſuper telario plano inſignis amplitudinis, depinxi anno 1685. *in Templo S.* Ignatii *Collegii Romani. Proinde ſi caſus aliquis illum abſumat, non deerunt qui ex iſto eundem in melius reficiant. Mirati fuerunt Architecti nonnulli; quod columnas interiores mutulis impoſuerim, id enim in ſolidis ædificiis ipſi non facerent. Verùm eos metu omni liberavit amiciſſimus mihi Pictor, ac pro me ſpoſpondit, damnum omne ſe ſtatim reparaturum, ſi fatiſcentibus mutulis, columnas in præceps ruere contingat.*

The Ninety-firſt Figure.

The Cupola of the Ninetieth Figure, with its Lights and Shades.

THE Cupola in this Plate will in all likelihood be of longer Duration, than that which I painted on a very large Table, for the flat Cieling of the Church of S. *Ignatius* of the *Roman* College, *anno* 1685. For if that ſuffer by any Accident, with the Help of this its Place may be ſupply'd by a better. Some Architects diſlik'd my ſetting the advanc'd Columns upon Corbels, as being a thing not practis'd in ſolid Structures; but a certain Painter, a Friend of mine, remov'd all their Scruples, by anſwering for me, That if at any Time the Corbels ſhould be ſo much ſurcharg'd with the Weight of the Columns, as to endanger their Fall, he was ready to repair the Damage at his own Coſt.

Fig. Nonageſimaſecunda.

Tholus *octangularis.*

X circulo fiet octagonum, accipiendo medietatem quadrantis circuli, ut habeantur ſingula latera octagoni. In eiſdem lateribus diſtribuetur veſtigium geomeiricum totius architecturæ, cum projecturis omnium membrorum, juxta modum quem ſervavimus in limbo circulari figuræ nonageſimæ. Utiliter etiam fieret elevatio geometrica totius Operis; quamvis ob ſpatii anguſtias ego eam omiſerim. Deinde poſitâ unâ cuſpide circini in centro circuli, extendetur alia cuſpis ad altitudinem ſingularum projecturarum inter ſpatium A *&* B, *ut hic vides: atque ope parallelarum, omnia transferentur in lineam* CD, *ut fiat optica deformatio, quam poſcit ſectio elevationis, cum aliis præparationibus, ut in figura præcedenti. Nam hic quoque ope circulorum invenire oportet puncta extrema in prominentiis membrorum ſingulorum architecturæ: ut conjungendo puncta per lineas rectas, quæ forment facies octagoni, compleatur totum Opus.*

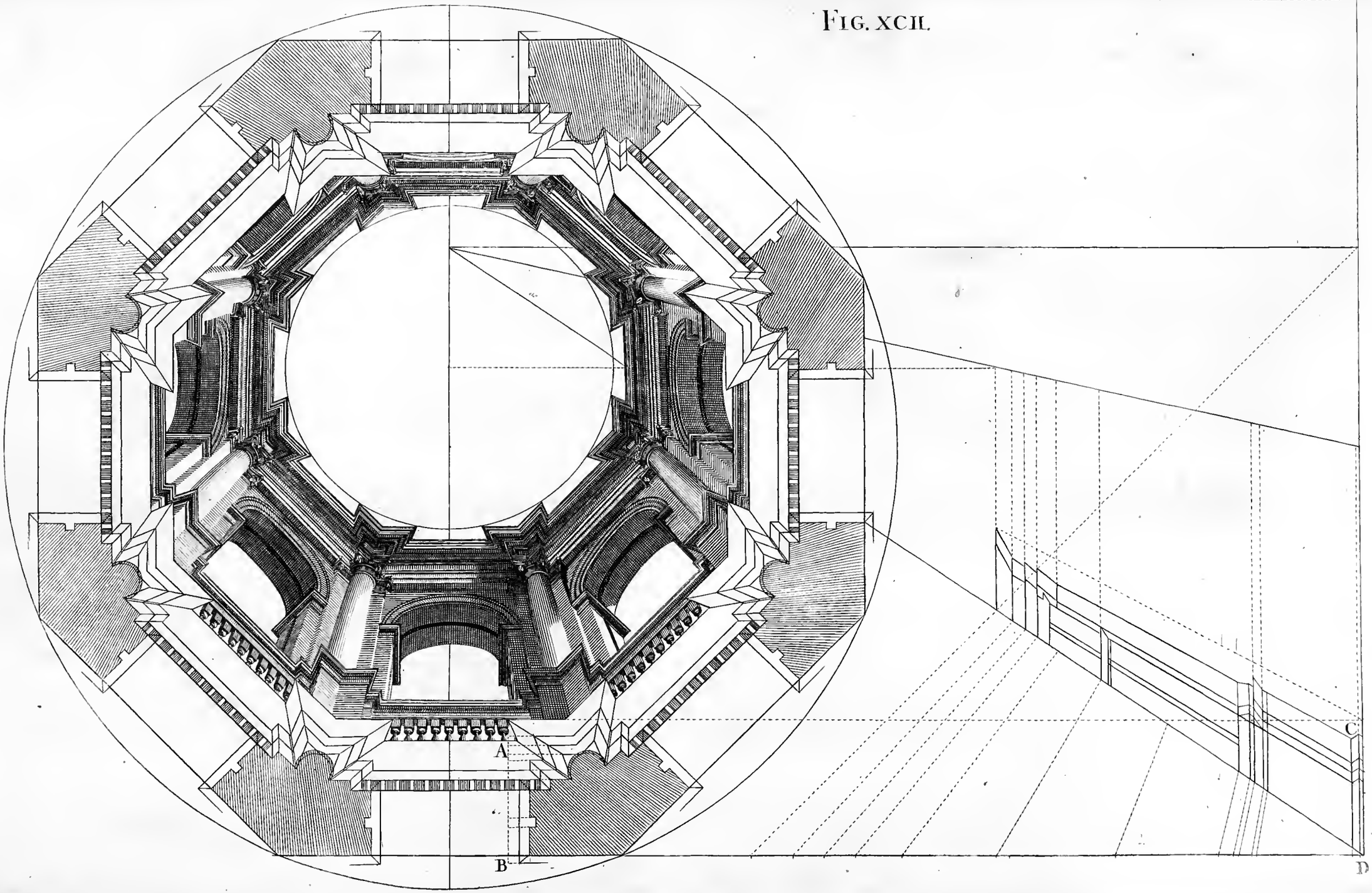
The Ninety-ſecond Fig.

An Octangular *Cupola.*

ROM the Circle deſcribe the Octagon, by taking half the Quadrant of the former for each Side of the latter. On theſe Sides the Geometrical Plan of the whole Architecture is to be diſpos'd, with the Projectures of all the Members thereof, in the ſame manner as was done in the circular Border of the Ninetieth Figure. It will alſo be expedient, to make the Geometrical Elevation of the whole Work, tho thro' Want of Room I have here omitted it. Then placing one Point of the Compaſſes in the Center of the Circle, extend the other to the Height of the ſeveral Projectures between A and B, as you ſee in the Figure; and by help of the Parallels transfer them all into the Line CD, for putting the Profile of the Upright into Perſpective, and drawing the other Requiſites, as in the foregoing Figure. For here alſo, by means of the Circles, are found the extreme Points of the Projectures of the ſeveral Members of the Architecture; and by conjoining theſe Points with ſtrait Lines agreeable to the Shape of the Octagon, the whole Work is completed.

THE GLASGOW SCHOOL OF ART LIBRARY

Fig. XCII.



THE · GLASGOW ·
SCHOOL · OF · ART
LIBRARY

FIG. XCIII.

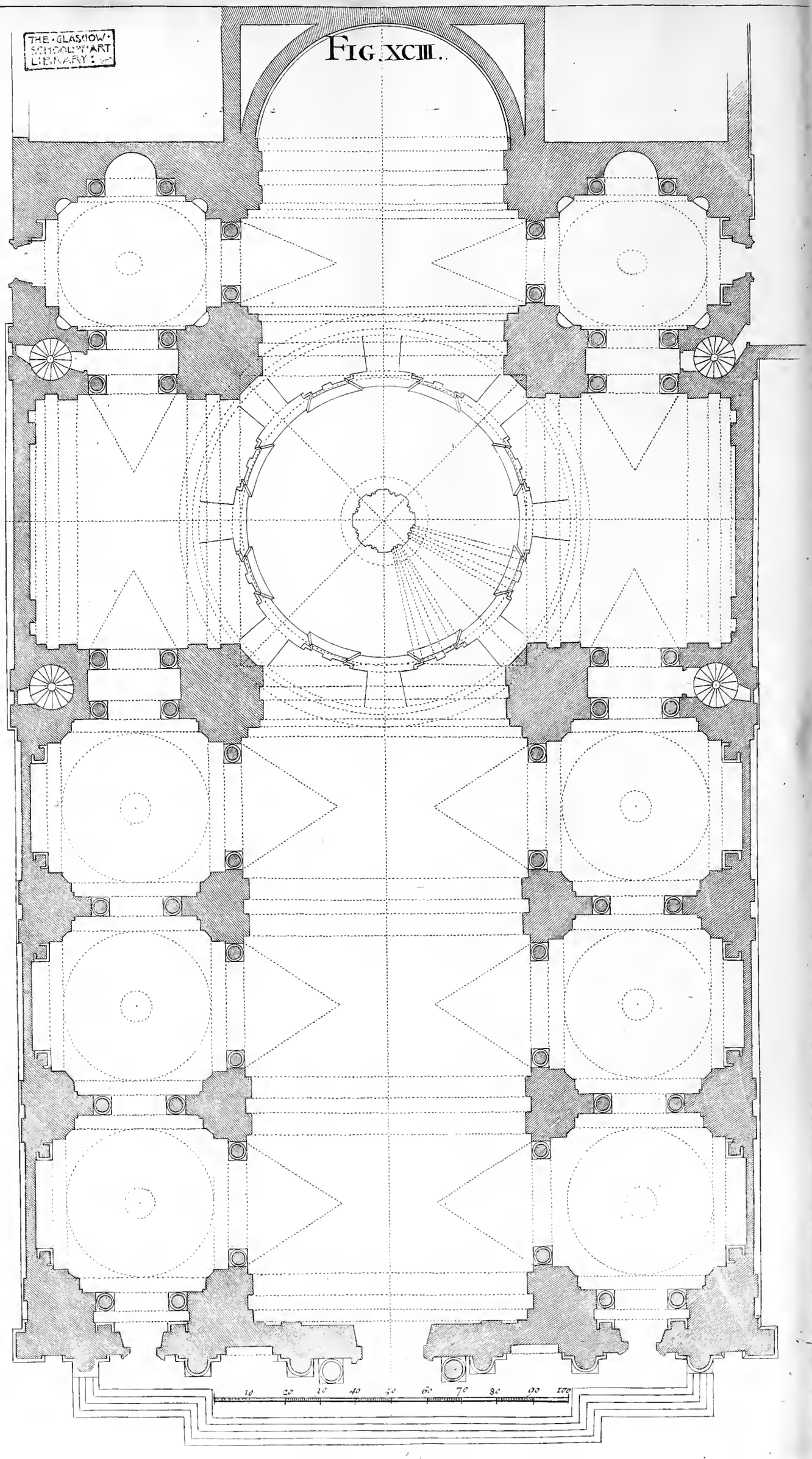


FIGURA Nonageſimatertia.

Veſtigium templi Ludoviſiani S. *Ignatii* almæ urbis.

CONSTITUERAM huic Libro finem imponere figurâ nonageſimaſecundâ; nihilominus ut ſatisfaciam precibus amicorum, cupientium addiſcere modum reticulationis opticæ, quæ adhibetur in ſuperficiebus irregularibus, ejuſque memini figurâ octogeſimaoctavâ publici juris facere decrevi ejus conſtruendæ methodum. Ipſiuſmet retis ope delineavi non ſolùm ædificium mox repræſentandum, ſed etiam figuras omnes teſtudinis templi Ludoviſiani, in qua pingenda nunc occupor. Eademque reticulatione, quæ erit ultima figura hujus Libri, dabimus Operi noſtro ſuum complementum; quum nulla ſit ſuperficies, in qua ſuas delineationes juxta Perſpectivæ regulas, earum rerum Studioſi abſolvere nequeant.

Exhibet hæc figura veſtigium totius templi. Quamvis enim non indigeam niſi teſtudine inter januam maximam & tholum; proderit nihilominus Architecturæ Studioſis, univerſi Operis elegantiam ac ſymmetriam per otium contemplari.

The Ninety-third FIGURE.

The Geometrical Plan of the Church of S. Ignatius *at* Rome.

Had once determin'd to end this Book with the Ninety-ſecond Figure; but at the Requeſt of ſome Friends, who were deſirous to learn the Making of Perſpective Net-Work for irregular Surfaces, as was hinted in the Eighty-eighth Figure; I reſolv'd to publiſh the Manner of performing the ſame. By the Help of this Net-Work, I delineated not only the Architecture now to be treated of; but alſo each Figure in the Vault of the Church of S. *Ignatius*, which I am at preſent employ'd in painting. The Method is laid down in the laſt Figure of this Book, and entirely compleats the ſame; there being no Superficies, how irregular ſoever, but the Studious may thereon deſcribe, by theſe Rules, whatever Perſpective he has occaſion for.

This Figure contains the Plan of the whole Church; for tho my preſent Deſign requir'd no more than the Vault of the Nave, between the great Door and the Cupola; I thought it might be nevertheleſs acceptable to the Curious in Architecture, to have a View of the whole Deſign, ſo celebrated for the Elegancy and Proportion of its Parts.

Fig. Nonageſimaquarta.

Orthographia Templi Ludoviſiani.

T magis tibi gratificer, orthographiam ſeu elevationem templi Ludoviſiani in longum diſſecti delineavi, cum omnibus menſuris quæ veſtigio ſunt communes; addito tholo juxta ideam Autoris. Ejus autem nondum conſtructi loco, poſitum eſt in A *&* B *telarium cum tholo depicto, de quo ſupra in figuris nonageſimâ & nonageſimaprimâ.*

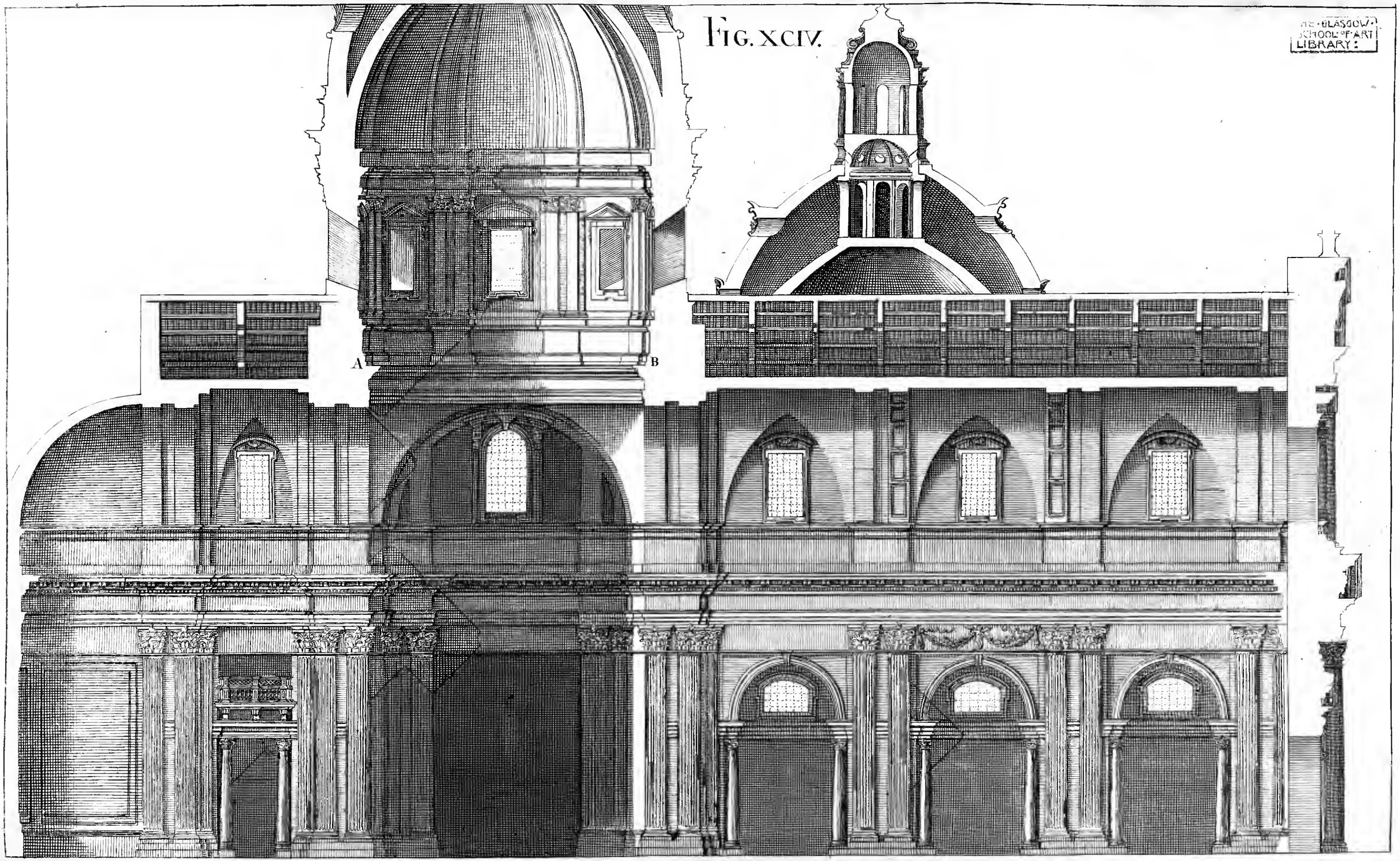
The Ninety-fourth Fig.

The Orthography, or Geometrical Elevation of the Inſide of S. Ignatius's *Church.*

OR your greater Satisfaction, I have here given the Geometrical Upright of the Church diſſected lengthwiſe, with all its Meaſures agreeable to thoſe of the Plan; as alſo the Cupola deſign'd by the Author; Which not being yet built, inſtead thereof is plac'd between A and B, the painted Cupola before deſcrib'd in the Ninetieth and Ninety-firſt Figures.

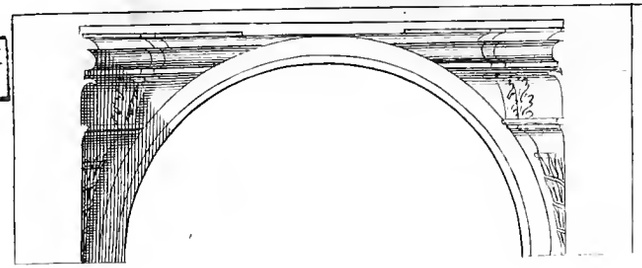
Fig. XCIV.

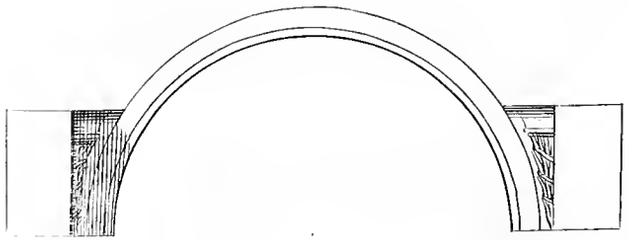
THE GLASGOW SCHOOL OF ART LIBRARY

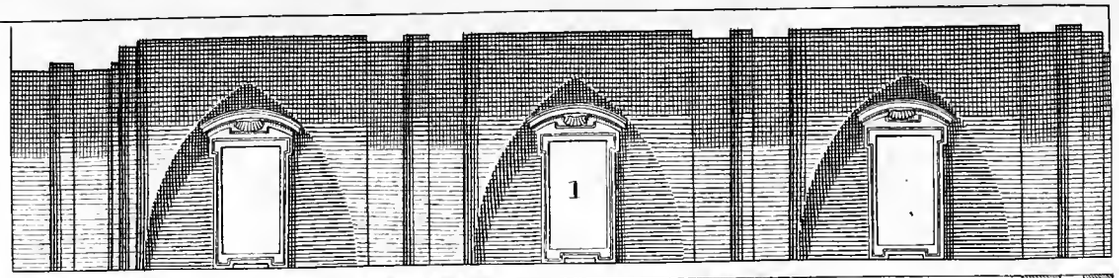


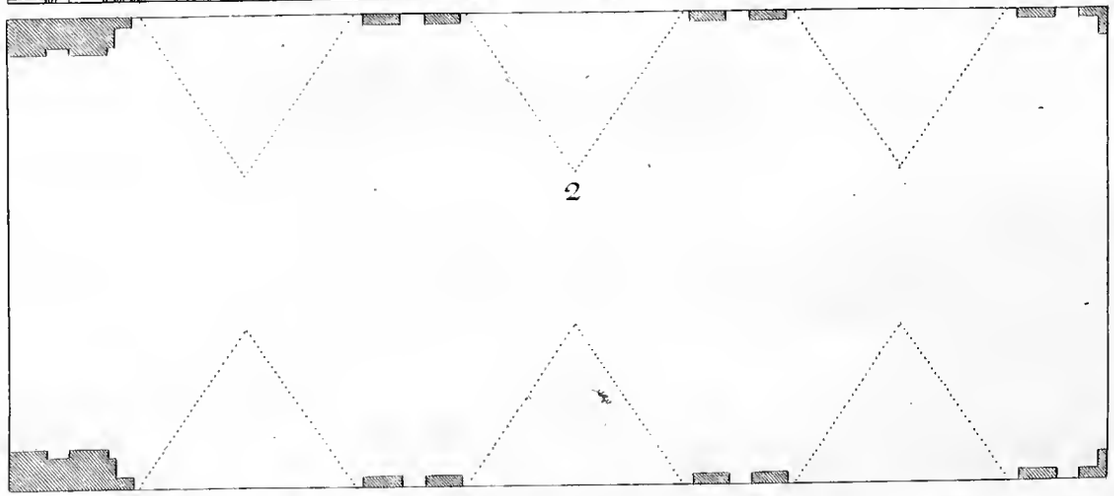
THE GLASGOW SCHOOL OF ART LIBRARY

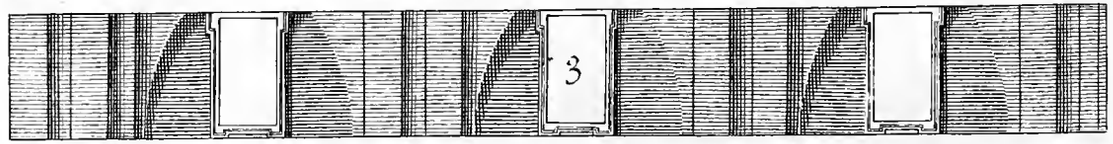
Fig. xcv.











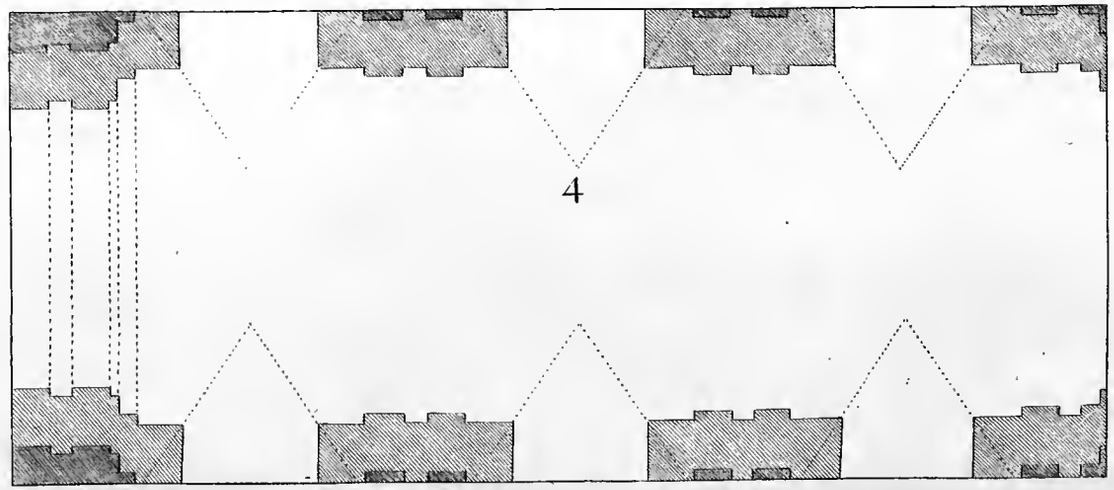


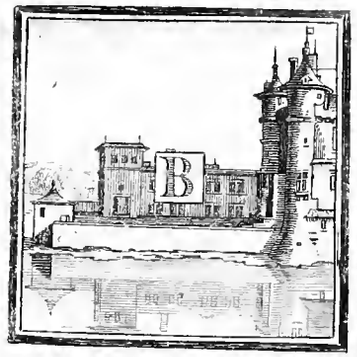
Fig. Nonageſimaquinta.

Aliæ præparationes ad figuras nonageſimamoctavam & nonageſimamnonam.

X hac Figura, in quatuor partes diviſa, diſces ex uno intuitu methodum qua ſum auſpicatus opticam delineationem templi Ludoviſiani. Prima *pars exhibet latus dextrum teſtudinis inter januam templi ac tholum.* Secunda *pars continet veſtigium ejuſdem teſtudinis, arcubus ac lunulis diſtinctæ.* Tertia *pars continet latus dextrum teſtudinis uſque ad ſummitatem feneſtrarum, unde incipit Architectura quam pingimus in fornice.* Quarta *pars eſt veſtigium Geometricum fornicis, cum prominentia quam habent arcus in ſummitate jam dicta feneſtrarum. Fingimus autem eandem eſſe ſoliditatem, tum ædificii depicti, tum navis templi; ſolæ enim columnæ, quæ reſpondent pilis templi, prominent extra ædificium.*

The Ninetyfifth Figure.

Other Preparations to the Ninety-eighth and Ninety-ninth Figures.



IN this Figure divided into four Parts, you will at firſt Sight perceive the Method I obſerv'd in beginning the Perſpective Deſign of this Church of S. *Ignatius*. The *firſt* Part ſhews the right-hand Side of the Vault between the Door and the Cupola. The *ſecond* contains the Plan of the ſame Vault, with its Arches and Lunettes. The *third* Part repreſents the ſame right-hand Side, to the top of the Windows; where begins the Architecture painted in the Vault. The *fourth* Part contains the Geometrical Plan of that part of the Vault which is painted; with the Lunettes made by the Arches above the Heads of the aforeſaid Windows. The Diſpoſition of the painted Architecture above, is the ſame with that of the Nave of the Church; ſave that, anſwerable to the Pilaſters below, I have ſuppos'd Columns projecting over the Work.

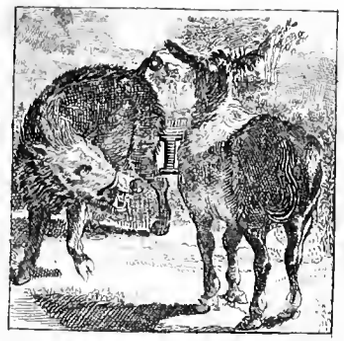
Figura Nonageſimaſexta.

Aliæ præparationes ad figuras nonageſimamoctavam & nonageſimamnonam.

RIMA pars figuræ hujus trifariam diviſæ, repræſentat elevationem geometricam lateris templi ſupra coronicem, & ædificii in teſtudine pingendi. Secunda *pars complectitur arcum teſtudinis maximum, & elevationem geometricam faciei ejuſdem ædificii.* Tertia *pars exhibet veſtigium totius ædificii pingendi in teſtudine, cujus amplitudo eadem eſt cum amplitudine navis, ut antea dicebamus. Porrò veſtigium geometricum non minus neceſſarium eſt ad pingendum ædificium, quàm ad ipſum ex materiâ ſolidâ extruendum, ut alibi monuimus.*

The Ninety-ſixth Fig.

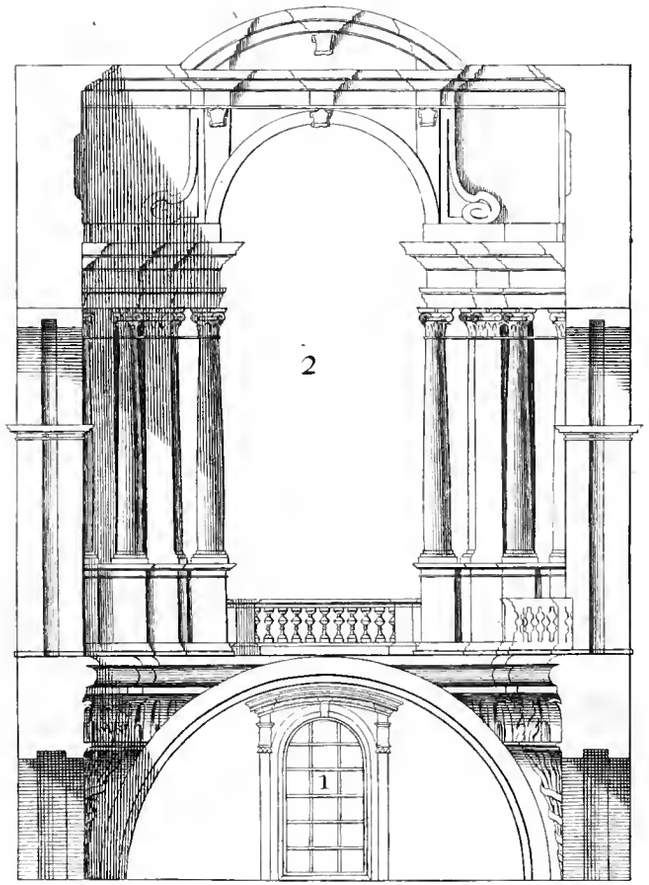
Other Preparations to the Ninety-eighth and Ninety-ninth Figures.

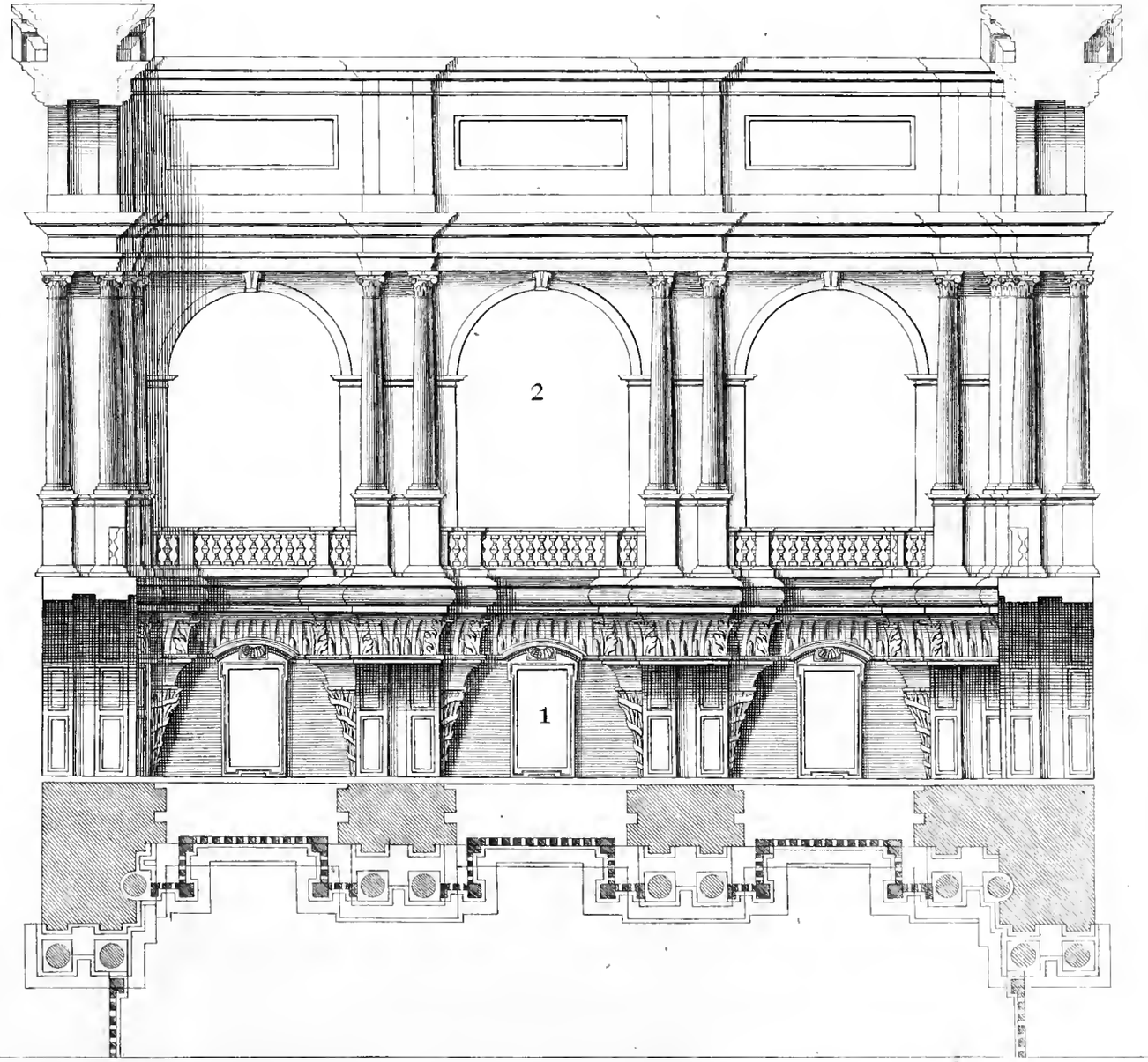


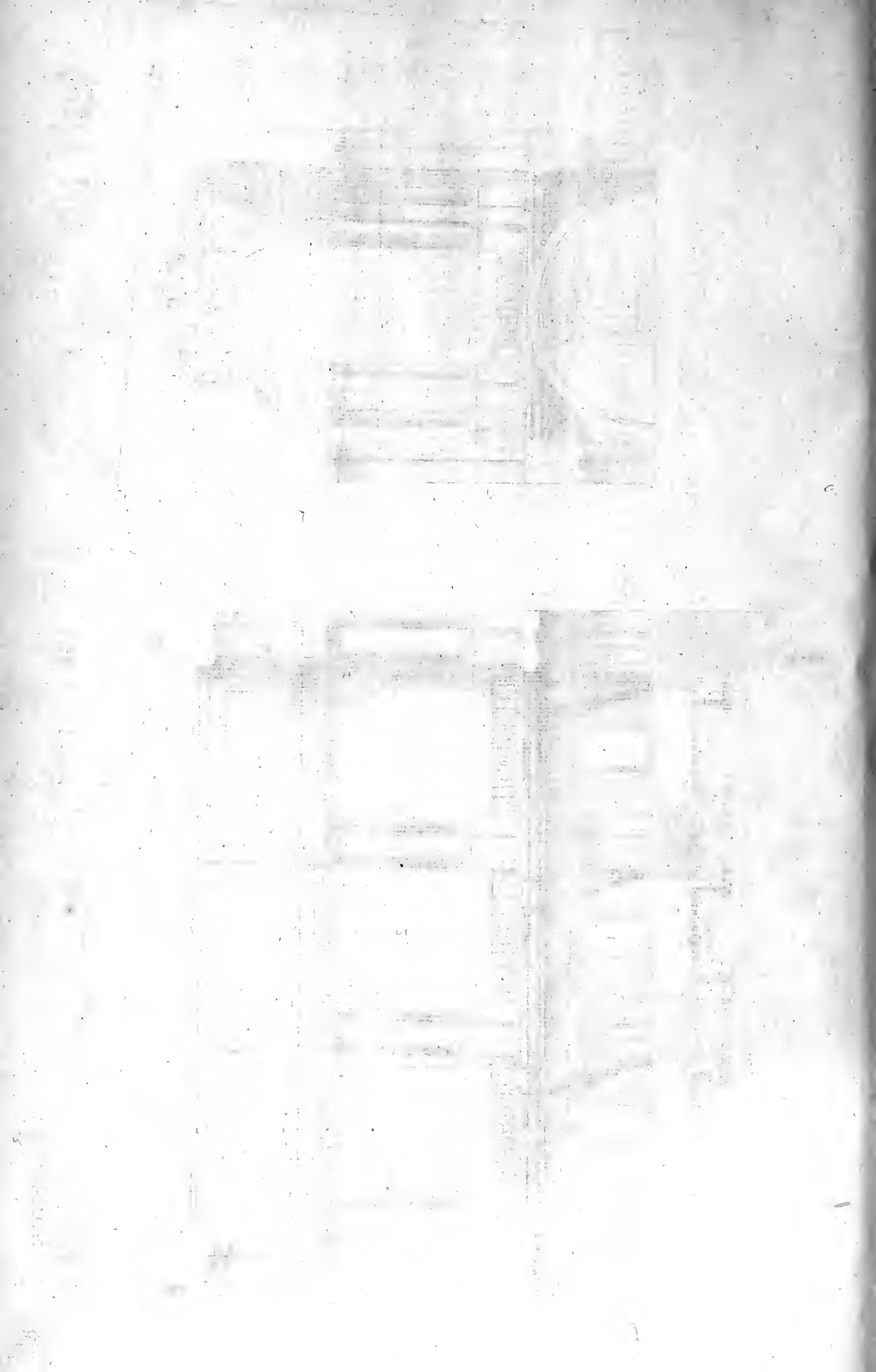
IN this Figure, which conſiſts of three parts, the *firſt* repreſents the Geometrical Elevation of the Right ſide of the Nave above the Cornice, and of the Deſign painted in the Vault. The *ſecond* contains the great Arch of the Vault, and the Geometrical Elevation of the Front of the ſaid Deſign. The *third* part ſhews the Plan of the whole Work painted on the Vault, the Extent and Diſpoſition of which is the ſame with that of the Nave, as before mention'd. The Geometrical Plan, as I have formerly hinted, is no leſs neceſſary for the painting a Deſign in Perſpective, than it is for raiſing a Structure with ſolid Materials.

Fig. xcvi.

THE · GLASGOW · SCHOOL · OF · ART LIBRARY







THE GLASGOW SCHOOL OF ART LIBRARY

Fig. XCVII.

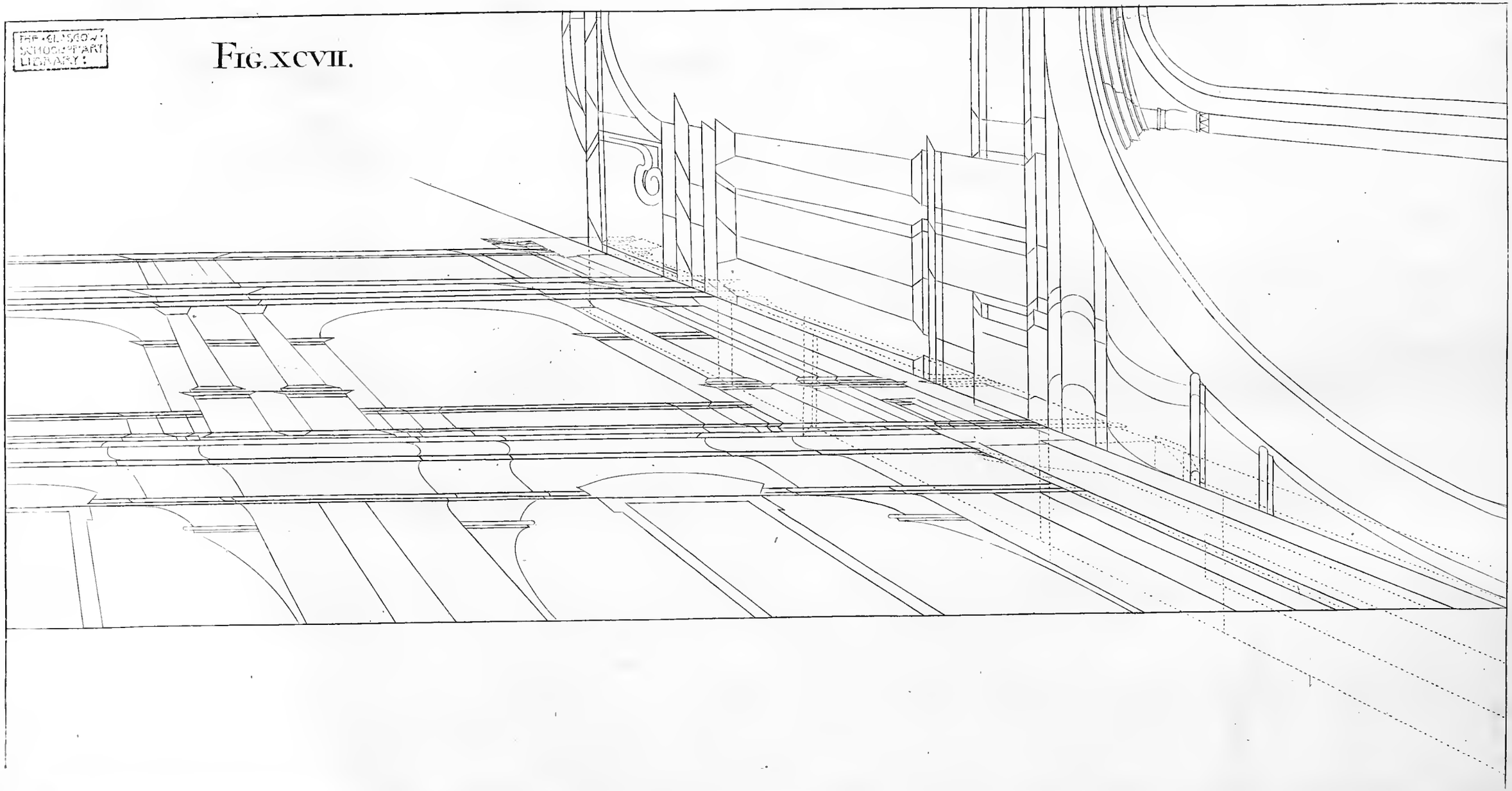


Fig. Nonageſimaſeptima.

Alia præparatio ad figuras nonageſimam-octavam & nonageſimamnonam

T optica projectio veſtigii & elevationis quartæ partis totius Operis diſtinctior evaderet, menſuras partium ſingularum quadruplicavi, eandemque methodum in hac delineatione tenui, quæ figuris octogeſimaſextâ, octogeſimaſeptimâ, octogeſimaoctavâ, & octogeſimanonâ, explicata fuit. Punctum oculi poſitum eſt in medio navis Eccleſiæ; punctum diſtantiæ eſt in lineâ ex quâ incipit arcus teſtudinis.

The Ninety-ſeventh Fig.

Another Preparation to the Ninety-eighth and Ninety-ninth Figures.

HAT the Perſpective of the fourth part of the Plan and Elevation of this Work might be more diſtinct, I have in this Figure made the Meaſures of each part four times as big as in the former; and have kept the ſame Method in this Delineation, as was deliver'd in the Eighty-ſixth, Eighty-ſeventh, Eighty-eighth, and Eighty-ninth Figures foregoing. I have ſet the Point of Sight in the midſt of the Nave of the Church; and the Point of Diſtance is in the Line from which the Arch of the Vault ſprings

Fig. Nonageſimaoctava.

Quadrans Architecturæ horizontalis in fornice, cum luminibus & umbris.

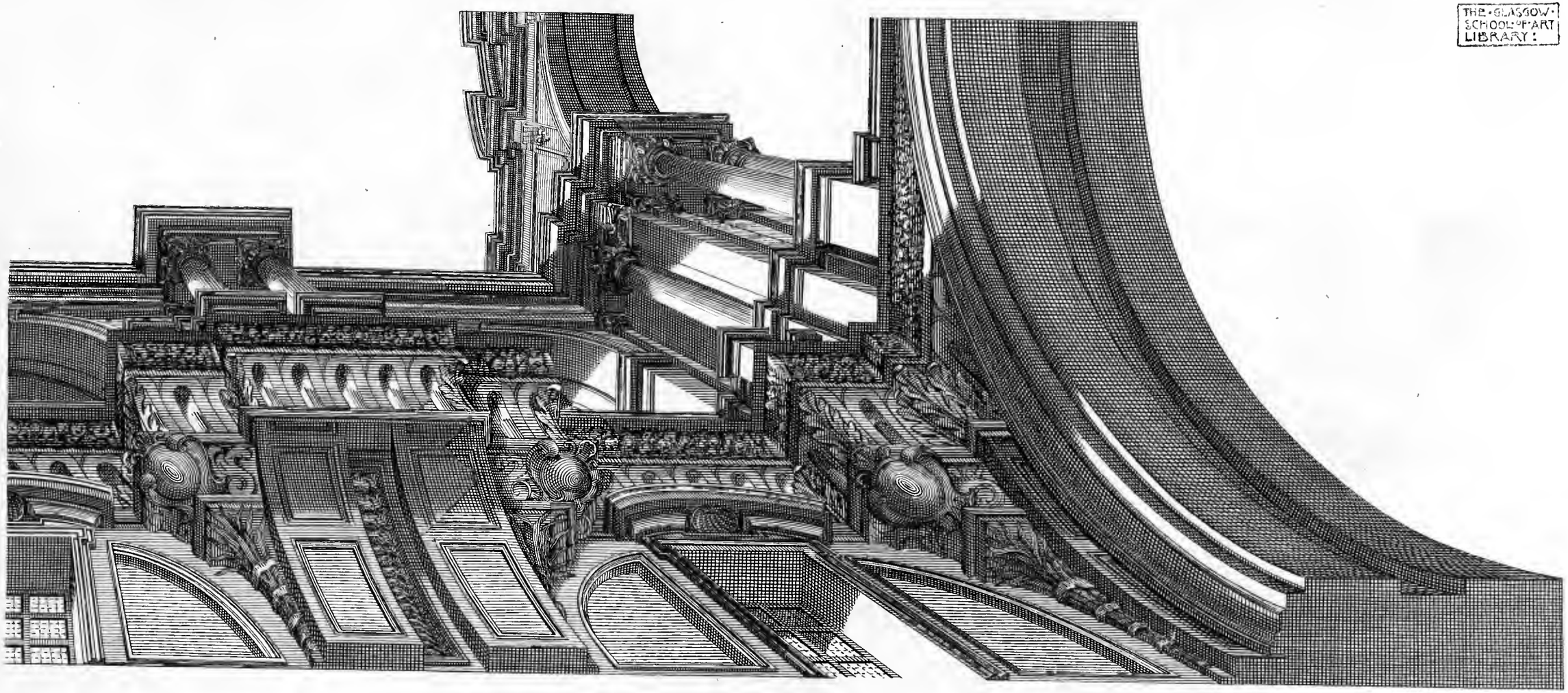
ABES in hac paginâ quadrantem totius Operis, modo conſueto erutum ex præcedenti: nimirùm, cuſpide circini ex angulis veſtigii accipiuntur lineæ perpendiculares; ex angulis verò elevationis deſumuntur lineæ parallelæ, ac lineæ viſualles ad punctum oculi.

The Ninety-eighth Fig.

A Fourth Part of the Architectonical Deſign, painted on the Vault of S. Ignatius's *Church; with its Lights and Shadows.*

IN this Figure you have a Quarter of the whole Work, drawn from the foregoing Figure after the uſual Manner; namely, by taking with the Compaſſes the perpendicular Lines from the Angles of the Plan; and the parallel Lines from thoſe of the Elevation, as alſo the viſual Lines to the Point of Sight.

FIG. XCVIII.



THE · GLASGOW · SCHOOL OF ART LIBRARY

THE ROW
SCHOOL OF ART
LIBRARY

FIG. XCIX.

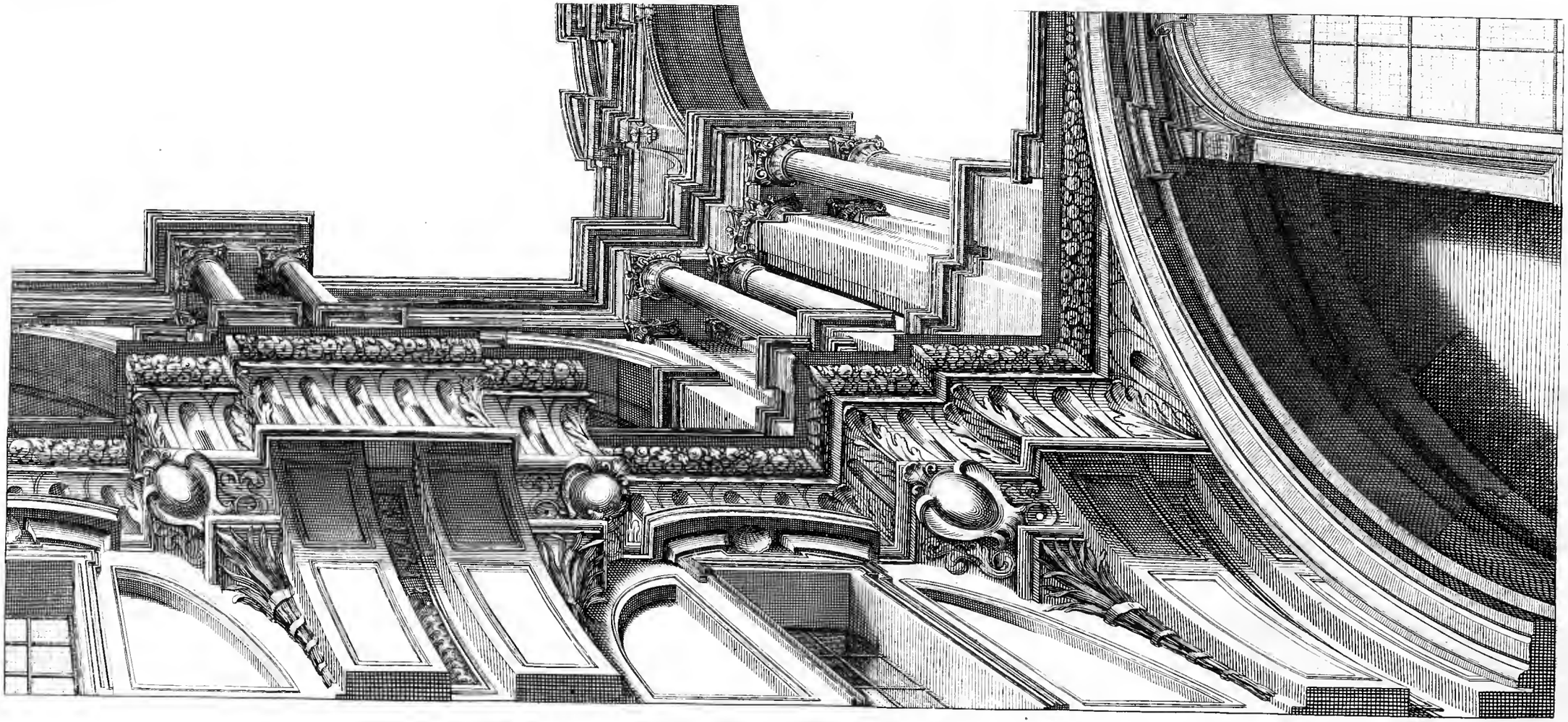


Figura Nonageſimanona.

Alter quadrans totius Operis.

B diverſitatem duorum quadrantum, tum in longitudine, tum in luminibus & umbris, ſeorſim apponendum utrumque cenſui; ut in eis delineandis omnem difficultatem tibi adimerem.

The Ninety-ninth Fig.

Another Quarter of the whole Deſign.

Y reaſon of the Difference of the two Quarters, as well in Length, as in their Lights and Shadows, I reſolv'd to deſcribe them ſeparately, that you might find no Difficulty in deſigning the whole Work.

FIGURA Centeſima.

Modus reticulationis faciendæ in teſtudinibus.

PERA quæ ſiunt in planis, contenta ſunt duplici reticulatione, ut notum eſt. Nam una earum fit in exemplari, altera fit in ſuperficie in quâ ipſum Opus pingendum eſt. At verò teſtudines exigunt tres reticulationes. Prima fit in exemplari, quod ſupponimus delineatum eſſe juxta regulas Perſpectivæ horizontalis. Secunda reticulatio conſtat ex funiculis, & eſt penſilis ; cujus formam geometricam habes in M. *Locum ubi figendi ſunt clavi qui ſuſtineant funiculos, exhibent rectæ* AB, EF : *optica verò deformatio retis eſt in* N. *Punctum oculi eſt* O, *diſtantiæ eſt* L O. *Itaque ſi imagineris, tempore nocturno, lumen candelæ aut lucernæ exiſtere in* O, *atque à reti ex funiculis projici lineas umbroſas in teſtudinem, eademque lineæ penicillo colorentur, habebitur tertia reticulatio ad pingendam teſtudinem neceſſaria.*

Dixi ſi imagineris, *quia in teſtudinem obductam tabulato, ac remotam à reti, & multò magis à lumine, vel projici nequeunt umbræ, vel nequeunt eſſe vividæ ac diſtinctæ, ut oportet. Itaque ubi nimia fuerit diſtantia, figes in* O *extremitatem fili ; eóque uſque ad teſtudinem extenſo, utêris veluti radio ac lumine candelæ, ad notandum umbræ locum. Proderit etiam, ut ſuper tabulato motum fili obſecundes lumine alicujus candelæ, quod ipſi filo proximè admoveas. Atque his aliiſque adminiculis, tuâque induſtriâ, colores induces ſuper lineis umbroſis, ac tertiam reticulationem abſolves. Poſſet etiam rete ex filis figi in parvâ diſtantiâ à coronice, puta in* G H, *unde incipit baſis ædificii : tunc autem umbræ in fornice ſunt magis diſtinctæ ac viſibiles.*

Diligentiſſimè curabis, ne menſuræ exemplaris diſcrepent ullatenus à menſuris teſtudinis : ut rete incidens in angulos, arcus, aut lunulas teſtudinis, exactè reſpondeat reti exemplaris. Demum ſi in vitia quæ emendari nequeant, incidere nolis ; ſcito, regulas omnes Perſpectivæ horizontalis, æquè in hominibus aut animalibus, ac in columnis aut coronicibus pingendis, omnino ſervari oportere.

The Hundredth Figure.

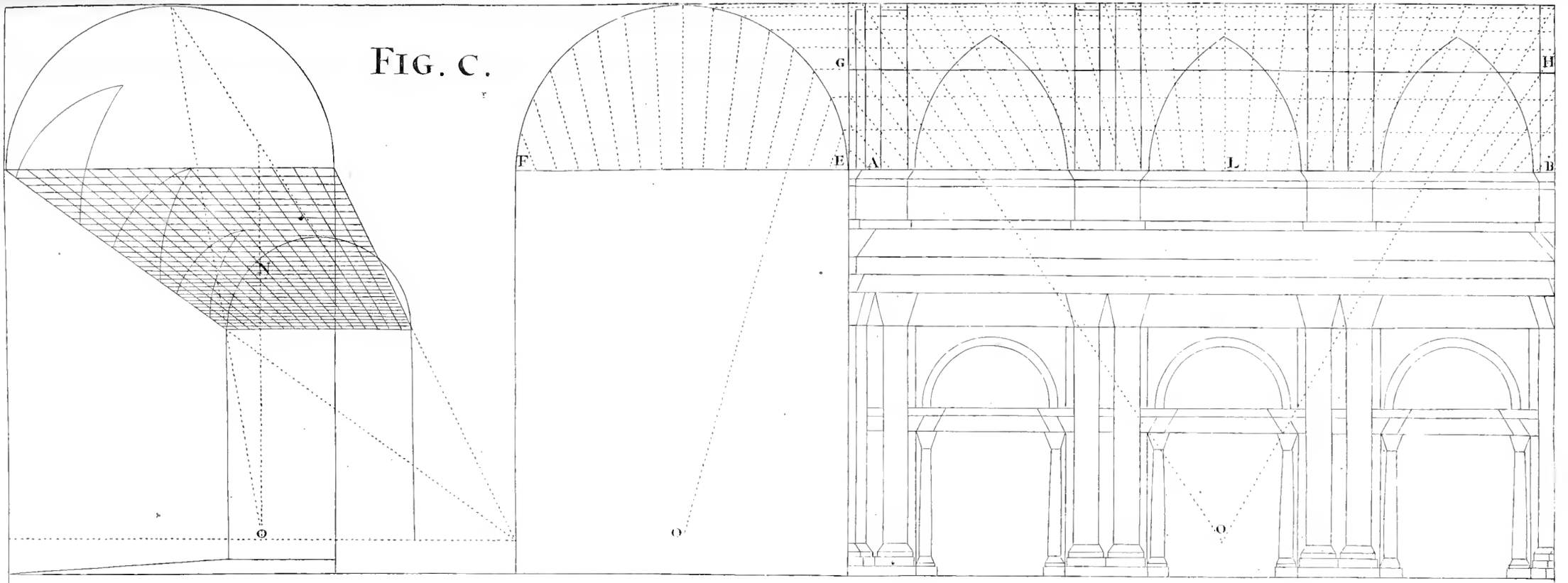
The Method of drawing the Net or Lattice Work on Vaults.

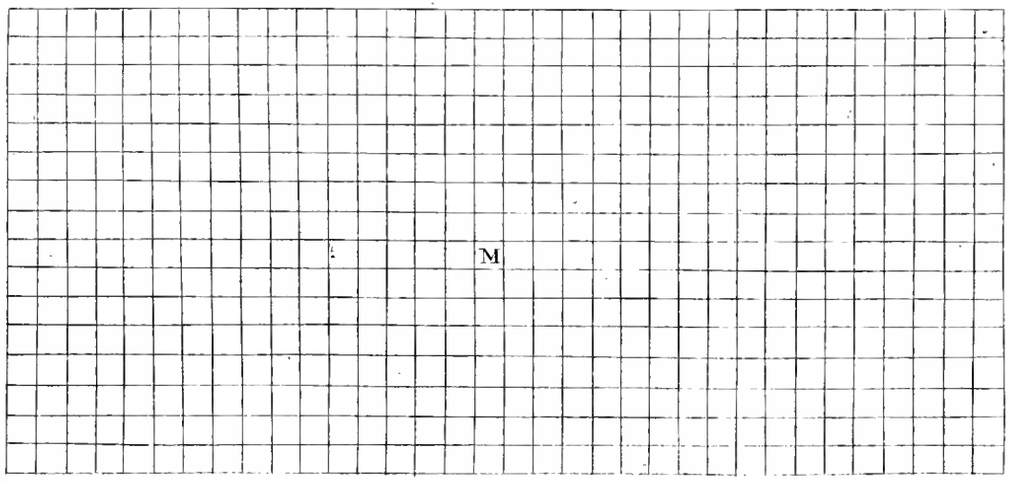
OR Works on a flat Superficies, two Net-works are ſufficient ; as has been already intimated : One drawn on the Copy ; the other on the Table to be painted. But for arch'd Surfaces or Vaults, three are requir'd : One made on the Copy, which I ſuppoſe drawn according to Rules of Horizontal Perſpective. The ſecond conſiſts of a Frame of ſmall Cords or Threads, to be hung up ; the Geometrical Form of which is M. The Lines A B, E F, ſhew the Place where this Frame is to be fix'd, in the ſame manner as the Perſpective N. The Point of Sight is O ; of Diſtance, L O. Therefore, if you imagine a Lamp or Candle fix'd in the Night-time at the Point O ; the Shadows of the Thread, thrown thereby on the Vault, being trac'd by a Pencil, make the third Net-work requir'd for painting the ſame.

I ſay, *if you imagine* a Lamp thus fix'd ; becauſe either the Scaffold to the Vault, or the great Diſtance of the Vault from the Net-work, or the greater of both from the Light, may prevent the Shadows from being thrown at all, or at leaſt, may render them ſo faint, as not to be diſtinct enough for the purpoſe. Therefore, where this happens, inſtead of the Light fix one End of a Thread in the Point O ; and extending the other to the Vault, make uſe of it as a Ray from the Lamp or Candle, for deſcribing the Place of the Shadows. It will be alſo of great uſe, to ſecond the Motion of the Thread with the Light of a Candle you may have by you on the Scaffold, holding the ſame near the Thread itſelf. By this, and other ſuch Helps, which your own Induſtry will ſuggeſt, you may lay theſe Shadows in Colours, and complete the third Net-work requir'd. The Frame of Threads may alſo be fix'd nearer the Vault at ſome Diſtance above the Cornice, as at G H, where the painted Architecture begins ; for the Shadows thrown on the Arch will by that means become more viſible and diſtinct.

You muſt be very careful, that the Meaſures of your Copy are exactly the ſame with thoſe of the Vault, that the Net-work thrown into the Angles, Arches and Lunettes of the Vault, may perfectly correſpond with that of your Copy. Laſtly, if you would not run into inextricable Errors ; aſſure yourſelf, that all theſe Rules of Horizontal Perſpective are as ſtrictly to be obſerv'd in the Figures of Men or Animals, as in painting Columns, Cornices, or the like.

FIG. C.





THE GLASGOW SCHOOL OF ART LIBRARY

Ut Perſpectivæ Tyronibus conſulerem, qui fortaſſe non adeo facilè percipient duodecim primas figurarum explicationes, totidem novas explicationes hic addo.

For the greater Help to Beginners, and thoſe who are leſs converſant in the Art of Perſpective, I here ſubjoin a farther Explanation of the firſt Twelve Figures of this Book.

Fig. I.

Explicatio linearum plani, & horizontis, punctorum oculi, & diſtantiæ; de hoc ultimo preſſiùs.

TRES lineæ diverſi inter ſe nominis, & muneris, item, & duo puncta præcipuè neceſſaria ſunt, ut delineatio quælibet opticè reddi queat: prima vocatur linea plani, ſecunda horizontalis ubi eſt punctum oculi; de tertia loquar in elevationibus: alterum de duobus punctis aſſignatur oculo, & vulgò dicitur punctum oculi; alterum verò aſſignatur diſtantiæ, à qua nomen habet. Punctum oculi notiſſimum eſt, punctum verò diſtantiæ non ità; in hujus igitur explicatione morabor, & ut clariùs oſtendam quid ſit, & quomodo formandum ſit, ſelegi deſcriptionem Eccleſiæ geometricè habitam, quam in tres partes diviſi, in veſtigium, ſectionem, & interiorem faciem, in qua facie velit quis pingere, ſeu delineare aliquid opticè, ut elongetur ad menſuram aperturæ quadrati P, *ut habes in veſtigio, & ad menſuram profunditatis* Q, *quam habes in ſectione.*

Super faciem CCCC, *quam puta eſſe delineamentum, habes rationem, qua debes diſponere ſupradicta puncta, & lineas.* HI *erit linea plani:* NON *erit linea horizontalis, quæ fieri ſolet diſtans à linea plani altitudine hominis, ut vides in* B. *Punctum oculi erit in* O; *punctum diſtantiæ erit in* N, *ex qua parte malueris. Hoc punctum* N *debet tantum abeſſe à puncto* O, *quantum tuo arbitratu tu vis procul eſſe ut videas profunditatem illius quadrati* PQ, *ſicut vides in exemplo veſtigii, & ſectionis; ubi rem velut in ſuo ſtatu naturali exhibeo: in iis enim tam abeſt* N *ab* O, *quam abeſt homo ab* A *ad* DE, *& homo* B *in ſectione, ab* FG, *ubi eſt murus in quo pingendum, vel delineandum eſt.*

Si ulteriùs curioſè deſcriptionem hanc conſideres, videbis quam bene reſpondeat quadratum P *in plano, & elevatio* Q, *ut naturalis ſtatus rei in ſectione Perſpectivæ poſitæ in facie* CCCC, *quæ eſt delineatio. Videbis enim viſuales, quæ ſecant in plano ſpatium* RS *ita pariter ſecare ſpatium* TV *in elevatione: & ſegmentum viſualium* XZ *in ſectione reſpondere* YK *in elevatione, quod demonſtratione non caret.*

An Explanation of the Lines of the Plan and Horizon, and of the Points of Sight and Diſtance; but more eſpecially of this laſt.

FOR beginning any Deſign in Perſpective, there are principally requir'd three Lines, and two Points: One Line where the Feet ſtand, which is call'd the Line of the Plan, or Ground-line: The ſecond where the Eye is plac'd, call'd the horizontal Line: I ſhall ſpeak of the third in the Elevations. Of the Points, one is aſſign'd to the Eye, the other to the Diſtance. The firſt of theſe is generally known, the latter not ſo well underſtood, tho of great Uſe for giving the Removal or Depth of every Object. I ſhall therefore inſiſt a-while on the Explanation of the Point of Diſtance; and that I may more clearly ſhew what it is, I have choſen the geometrical Deſcription of a Church, which is divided into three Parts, *viz.* the Plan, Profile, and inner Face; in the midſt of which Face, one would paint a piece of Perſpective, that ſhould ſeem to recede as much as the Square P in the Plan, and the Depth Q in the Profile.

On the Face CCCC, which ſuppoſe that of the Deſign, you ſee the manner of diſpoſing the two Lines and the two Points. HI is the Ground-line. NON is the horizontal Line, which is uſually made a Man's Height above the Ground-line, as in B. The Point of Sight is O, the Point of Diſtance N, on which ſide you will. This Point N muſt be as far from O, as the Diſtance you determine to place your ſelf at for viewing the Depth of the Square PQ; as is exemplify'd in the Plan and Profile, where you ſee the thing as in its natural Poſition: And in them N is diſtant from O, as far as the Man in A is remov'd from DE; or the Man B in the Profile from FG, which is the Wall to be drawn or painted upon.

If you farther and more ſtrictly examine this Deſcription, you'll diſcern how well the Square of the Plan P, and the Elevation Q, correſpond, as if naturally put into Perſpective on the Face CCCC, which is the Draught. For you ſee the Viſuals which cut the Space RS in the Plan, cut the ſame Space TV in the Upright; and the Segment of the Viſuals XZ in the Profile, anſwer that of YK in the Elevation; which needs no Demonſtration.

Fig. II.

Quadratum opticè delineatum.

POSTQUAM deſcripſeris in papyro ſeparata quadratum geometricum A, *facies duas lineas parallelas inter ſe diſtantes altitudine, quam dederis puncto oculi; linea inferior erit linea plani, linea ſuperior erit linea horizontalis, ſuper quam ponuntur puncta oculi* O, *& diſtantiæ* E, *quod ſit ex parte quam mavis: linea diſtantiæ non debet eſſe brevior magnitudine rerum deſcribendarum. Transfer poſteà circino latitudinem quadrati* A *in* CB, *unà cum viſualibus ad punctum* O; *& ſimiliter transfer longitudinem ipſius quadrati in* DC, *ducens lineam à puncto* D *ad punctum diſtantiæ* E, *tranſeuntem per viſualem* CO, *& ubi illa ſecat, habebis terminum quadrati optici* GFCB, *ducens paralellam ad lineam plani in* GF.

Ut autem hoc idem citiùs abſolverem, ſæpius chartam complicavi, ut habes in A.

A Square in Perſpective.

AFTER you have drawn on a ſeparate Paper the geometrical Square A, make two parallel Lines as much diſtant one from the other, as you would have the Height of the Eye. The under Line is the Plan or Ground-line; the upper Line is that of the Horizon, on which are plac'd the Points of Sight O, and of Diſtance E, on which ſide you pleaſe. The Line of Diſtance ſhould not be ſhorter than the Extent of the thing to be deſcrib'd in Perſpective. Then with your Compaſſes ſet the Breadth of the Square A on CB, and draw Viſuals to the Point O; and from the Length of the Square transferr'd into DC, draw a Line from the Point D to the Diſtance E; and where that cuts the Viſual CO, by drawing a Line parallel to GF, you deſcribe the Square in Perſpective GFCB.

For the more quick Diſpatch of this, I commonly fold the Paper, as you ſee in A.

FIG. III.

Rectangulus altera parte oblongior opticè.

QUIDQUID in proximo quadrato vidisti, facies in præsenti. Transferres latitudinem BC *in* BC, *& longitudinem in* CD, *ducens latitudinem* BC *ad punctum oculi* O, *& longitudinem* CD *ad punctum distantiæ* E. *Ubi verò hæc linea secat visualem* CO, *erit terminus rectanguli supradicti* FG, BC, *ducens parallelam ut supra.*

An oblong Square in Perspective.

WHAT was done in the preceding repeat in this Third Figure. Transfer the Breadth BC into BC, and the Length into CD, drawing the Breadth BC to the Point of Sight O, and the Length CD to the Point of Distance E. Where this cuts the Visual CO, you terminate the Square FG, BC, by drawing the Parallel, as before.

FIG. IV.

Quadratum duplex opticè.

EODEM modo construes quadratum duplex A, *transferens circino, aut duplicando chartulam, latitudinem cujuscumque lineæ, ut vides in punctis* 1, 2, 3, 4, 5, 6, *super lineam plani in iisdem numeris, & ab istis transferes visuales ad punctum* O. *Postea transfer longitudinem* 7, 8, 9, 10, *super lineam plani in iisdem pariter numeris, & ab istis duc lineas ad punctum distantiæ* E. *Ubi his lineæ secant lineam* 6, 7, O, *fiunt lineæ parallelæ ad lineam plani, & quadratum conficitur; parem constructionem facies de quadrato secundo & tertio, facilè ex dictis.*

A double Square in Perspective.

THE double Square A is made after the same manner as the former, by transporting either with the Compasses, or folded Paper, the Breadth of every Line, as you see the Points 1, 2, 3, 4, 5, 6, on the Ground-line mark'd with the same Numbers; and from these draw Visuals to the Point of Sight. Then transfer the Points of Length 7, 8, 9, 10, into the Ground-line, as you see also in the same Numbers; and direct their Lines to the Point of Distance E, where these intersect the Visual 6, 7, O, make Parallels to the Ground-line, and the Square is complete. The same is done in describing the middle Square, and that on the other Side.

FIG. V.

Quadratorum vestigia cum elevationibus.

FIGURAM hanc in duas partes divisi; in superiori parte vides tria quadrata optice aliquantulum adumbrata, eaque tam inter se distantia, quanta est distributio super lineam plani. BC *erit quadratum primum. Secundum erit in* EF. *Si ergo posueris longitudinem quadrati in* BC, *eamque duxeris ad distantiam, secabit in* DD *visualem* AO. *Si pariter posueris alterum spatium longitudinis ejusdem quadrati in* EF, *& duxeris ad lineam distantiæ, habebis secundum quadratum opticè. Idem facies de tertio, & de aliis, quæ distribuenda sunt.*

In secunda parte. Si desideres supra totidem vestigia formare elevationes cuborum, & stylobatarum, ut in inferiori figuræ parte vides, satis erit ex omni vestigiorum angulo elevare lineas occultas, & apparentes, determinando altitudinem facies L *primo cubo, & anguli ejusdem faciei dabunt altitudinem omnium aliorum.*

Immò etiam totidem cubos formare potes sine lineis occultis, ducendo solùm apparentes, ut vides in tribus expositis adumbratis, & nitidis, quorum perpendiculares sumuntur ab angulis vestigiorum, ut in superiori figura habes in H, *& lineæ plani translatæ sunt ab angulis elevationis, ut videtur in* F.

Several Plans of Squares, with their Elevations.

I HAVE divided this Figure into two Parts; In the uppermost you have three Squares in Perspective a little shadow'd, distant from one another, according to their Distribution on the Ground-line. BC is the first Square; EF the second. If you then set the Length of a Square on BC, and draw Lines to the Point of Distance, they will intersect the Visual AO in DD. In like manner, if you set another Length of the said Square on EF, and draw to the Point of Distance, you'll have the second Square in Perspective. The same you may do in the third, and as many as you have occasion for.

In the second Part you see, that if upon the forementioned Plans, the Elevations of Cubes and Pedestals were requir'd, it would suffice to elevate the occult and visible Lines from every Angle of the Plan; and determining the Height of the Face L of the first Cube, the Angles of that Face drawn to the Point of Sight, give the Height of all the others.

You may form the same Cubes without occult Lines, drawing only those that are apparent, as you see in the three Cubes that are finish'd and shadow'd; the Perpendiculars of which are taken with the Compasses from the Angles of the Plan, as is shewn in HI of the upper Figure; and the level Lines are transfer'd from the Angles of the Elevation, as in FG of the same Figure.

FIG. VI.

Modus delineandi opticè sine lineis occultis.

DESIDERANS facili methodo figuram hanc exponere, dabo rationem elevandi corpora sine lineis occultis, ut in superiori tetigi; ostendam igitur hic, quomodo quinque cubi adumbrati desumantur ab eorum vestigiis, & elevationibus.

Duas debes facere præparationes, si libeat, in chartis etiam separatis. Prima erit formare geometricè vestigium, & elevationem, ut vides in B *&* A. *Secunda erit distribuere super lineam plani latitudinem vestigii* B, *puta in* NM, *& in duabus proximis: Illius longitudo* MX *ducta ad distantiam* D, *secat visualem* MO *in* R. *Spatium autem obliquatum* E *utile etiam est aliis duobus quadratis positis super eandem lineam plani; anguli quorum translati ad distantiam* B, *totidem angulos dabunt inter visuales* NO, MO. *Hoc posito, duces perpendicularum ad angulum* N, *quæ in elevationibus geometricis semper necessaria est, eaque tertia linea est, quam supra dixi. Transfer postea altitudinem* A *in* NF, *cum visualibus* FO, NO, *& invenies altitudinem* ST. *Hoc pariter de cæteris eveniet.*

The Manner of designing in Perspective without occult Lines.

BEING desirous to make this Rule as easy as possible, I shall give a farther Account of raising Solids without the Help of occult Lines, which I only touch'd upon in the foregoing Figure. I therefore here shew you, how the five shadow'd Cubes of this Figure are taken from their Plans and Elevations.

Two things preparatory are to be done, and, if you please, on separate Papers. The first is to describe the Geometrical Plan and Elevation, as you see in B and A. The second is, to dispose on the Ground-line the Breadth of the Plan B; as for Example, in NM, and the two next to it. The Length thereof MX, drawn to the Point of Distance D, cuts the Visual MO in R; and the Foreshortning E serves also for the other two Squares plac'd upon the same Ground-line, whose Angles being directed to the Distance D, give as many Angles on the Visuals NO, MO. This done, erect a Perpendicular on the Angle N, which in Geometrical Elevations is always necessary, and is the third Line mention'd in the first Figure. Then carry the Height A on NF, drawing the Visuals FO, NO, which determine the Height ST, and that of the other Squares.

Scien-

Sciendum ſupereſt quonam modo ſupradictâ præparatione uti poſſis ad conſtruendos ſtylobatas adumbratos, & inornatos.

Super aliam igitur chartam diſpone ſitum cum duabus lineis, plani ſcilicet, & horizontis, una cum puncto oculi O, *& perpendiculari* V, *ejuſdem menſuræ cum ſupradicta præparatione, & faciens uti me feciſſe vides. Experire poſtea circino* NF *æqualia eſſe* 1, 5, *&* 2, 6. *Metire pariter* ST, *& invenies æqualia* 7 *&* 3 ; *facies poſtea lineas planas, & viſuales ad punctum oculi, & habebis planum ſuperius cubi in* 1, 2, 3, 4. *Hoc idem faciendum eſt de aliis. Uno verbo: anguli veſtigiorum dabunt tibi lineas perpendiculares, & anguli elevationis dabunt lineas planas ; atque hoc ſemper erit.*

It remains to be known, how to make uſe of the foreſaid Preparation for the Conſtruction of the ſhadow'd Pedeſtals.

On another Paper, therefore, diſpoſe the Horizontal and Ground-lines, together with the Point of Sight O, and the Perpendicular V, keeping the ſame Meaſures as in the aforeſaid Preparation, and doing as I have done. You may prove by the Compaſſes, that NF is equal to 1, 5, and 2, 6, and meaſuring ST, you'll find it equal to 7, 3 ; then drawing the level Lines, and the Viſuals to the Point of Sight, you have the upper Face of the Cube C in 1, 2, 3, 4. The ſame muſt be done in the others. In a word, the Angles of the Plan give you the perpendicular Lines, and the Angles of the Elevation give the level Lines, or thoſe parallel to the Ground-line ; and this you are always to underſtand for the future.

FIG. VII.

Aliud exemplum conſtruendi veſtigium geometricum, cum elevatione longitudinis.

VIDES hic ſtylobatam P *in quatuor partes diviſum, & adumbratum. Si illum opticè delineare velis, conſtruere debes ſupradictas præparationes, geometricam nempe, & opticam. Nomine geometricæ intelligo veſtigium* A, *& elevationem* B ; *nomine vero opticæ, totum id quod includitur in* G, C, D, E, O.

Transfer igitur latitudinem geometricam CD *veſtigii* A *ſuper lineam plani pariter* CD, *& transfer longitudinem* DE *ſuper lineam plani pariter* DE, *operans more ſolito ; & habebis veſtigium opticè. Transfer poſteà elevationem* HX *in* CG *perpendicularis ; ducens viſualem* GO, *eleva ad lineam* GO *omnem angulum, quem planum facit in linea* CO, *& habebis altitudinem neceſſariam etiam ſectionis.*

Transferes denique circino in aliam chartam angulos veſtigii, qui dabunt tibi lineas perpendiculares, & anguli ſectionis dabunt lineas planas : Viſuales vero duces ad punctum oculi.

Another Example of a Geometrical Plan, with the Elevation of its Length.

IF you would delineate in Perſpective the Pedeſtal P, which you here ſee divided into four Parts, and ſhadow'd ; you muſt make the two foregoing Preparations ; namely, the *Geometrical* and the *Perſpective*. By the *Geometrical*, I mean the Plan A, and the Elevation B ; by the *Perſpective*, all that's contain'd within G, C, D, E, O.

Then transfer the Geometrical Breadth of the Plan A, into CD of the Ground-line ; and the Length DE of the ſaid Plan into DE of the Ground-line working after the uſual manner ; and you will have the Plan in Perſpective. Again, ſet the Elevation HX on CG of the Perpendicular, and drawing the Viſual GO, elevate thereto every Angle made by the Plan on the Line CO, and you have all the Heights neceſſary for the Profile.

Laſtly, by the Compaſſes you tranſport on a clean Paper the Angles of the Plan, which give the perpendicular Lines ; and thoſe of the Profile, which give the level Lines. The Viſuals you draw to the Point of Sight.

FIG. VIII.

Stylobata opticè.

HIC etiam poſtquam feceris ſupradictas præparationes, geometricam ſcilicet, & opticam ; facies præſentem ſtylobatam adumbratum, transferens circino angulos veſtigii, ut conſtruas perpendiculares ; & angulos ſectionis, ut formes lineas planas, ut ſupra. Nam ſic duo anguli veſtigii MO *dabunt lineas perpendiculares* EF ; *angulus veſtigii* R *dabit perpendicularem* P, *& ſic reliqui anguli dabunt reliquas lineas perpendiculares. Similiter à ſectione angulus* I *dabit lineam planam* HN. *Breviter, primus terminus ſectionis* ID *dabit altitudinem linearum planarum in facie ſtylobatæ adumbrati* EFHN. *Secundus terminus* Q *dabit altitudinem faciei oppoſitæ, & occultæ* P.

Duo tamen moneo ; primum, ut faciens veſtigia geometrica, ducas ab elevatione A *totidem lineas ad latera veſtigii* B, *quot angulos inveniens in prominentiis ſupradictæ elevationis* A *cadunt ſuper veſtigium* B ; *quare prominentia major in elevatione* L *facit lineam majorem* L *in veſtigio.*

Secundum quod moneo ſit, ut volens elongare veſtigium opticè delineatum MOR *à linea plani* K, *quantum erit ſpatium* C *in eadem linea plani, tantumdem elongabitur ſpatium* G *à linea ejuſdem plani.*

A Pedeſtal in Perſpective.

HERE alſo, after you have made the two foregoing Preparations, the Geometrical and the Perſpective ; this ſhadow'd Pedeſtal is made by taking with the Compaſſes the Angles of the Plan, for drawing the Perpendiculars, and the Angles of the Profile for the level Lines, as before. Thus the two Angles of the Plan MO, give the perpendicular Lines EF. The Angle of the Plan R, gives the Perpendicular P ; and the other Angles give their reſpective Perpendiculars. So likewiſe in the Profiles, the Angle I gives the level Line HN. In ſhort, the firſt Out-line of the Profile ID gives the Height of the level Lines on the Front of the ſhadow'd Pedeſtal. The other Out-line Q gives the Height of the occult and back part thereof.

Nevertheleſs, two Things are to be obſerv'd ; firſt, that in making the Geometrical Plan, you draw from the Elevation A, as many Lines to the Side of the Plan B, as you have Angles in the Projectures of the ſaid Elevation ; as is manifeſt in the pointed Lines, which fall from the upright A, on the Plan B, where that of the greateſt Projecture L in the Elevation makes the outer Line L of the Plan.

The ſecond thing to be obſerv'd, is, That if you would have the perſpective Plan MOR as far within the Ground-line K, as the Breadth of the Space G on the ſame Line, the Space G will then be the Diſtance thereof from the ſaid Ground-line.

FIG. IX.

Optica delineatio Architecturæ Jacobi Barozzi : & primum, de ſtylobata Ordinis Etruſci.

QUANDOQUIDEM omnibus nota eſt Architectura Barozzii, eam hic penitus immutatum cum ſuis regulis particularibus, & generalibus expono ; Metieris autem illam modulis ut fieri ſolet ; qui igitur illam deſiderat, in ſequentibus figuris inveniet totam, ſimulque diſcet opticè reddere. Cum autem non minus Opticæ ſtudioſo quam Architecturæ neceſſe ſit, efficere delineamenta

The Architecture of Vignola *put in Perſpective ; and firſt, The Pedeſtal of the* Tuſcan *Order.*

SINCE every one is acquainted with *Vignola*'s Architecture, I determine not to alter it, but to explain it, with its general and particular Rules ; meaſuring the ſame with Modules, after the uſual manner. He therefore that has it not, may find it in the following Figures, and, at the ſame time, learn the Method of putting it in Perſpective. And whereas

rei

rei conſtruendæ, ab hoc verè, ab illo fictè, id eſt, cum uterque facere debeat veſtigium, elevationem, ſectionem & faciem, ob id delineavi hic ſtylobatam Ordinis Etruſci cum ſuo veſtigio, quem vides in AB, *ut facilius percipias quod in proxima figura dixi, à totidem ſcilicet angulis prominentiarum elevationis, totidem ducendas eſſe lineas ſuper lineam veſtigii; cum hoc neceſſe ſit ad inveniendum illorum angulorum cum iſtis lineis concurſum in ſuis degradationibus. Nota longitudinem, quam voco* F *ductam in* G *eſſe illam, à qua non ſolùm naſcitur veſtigii obliquitas, verùm etiam ab illa naſcitur obliquitas illius quam voco ſectionem* E. *Ob id in altero hujus ejuſdem figuræ ſtylobata totum id è contrario videbis.*

Non ampliùs repetam quonam modo eruatur nitida delineatio, de qua ſuperiùs pluries; dicam tamen angulos primi termini ſectionis E *daturos lineas planas faciei* D, *& angulos veſtigii daturos omnes perpendiculares.*

the Drawing the Plan, Elevation and Profile of what's to be built, is no leſs neceſſary for him that ſtudies Perſpective, than for the Architect, the firſt performing in Appearance, what the latter does in Reality; I have therefore here delineated the *Tuſcan* Pedeſtal, with its Plan, as you ſee in AB, that you may the better apprehend what I ſaid in the foregoing Figure, That from all the Angles of Projecture in the Elevation, Lines muſt be let fall on the Plan; this being of abſolute neceſſity for finding the Correſpondence of the Angles with the Lines in the Perſpective Projection. Obſerve, that what I always call Length, as from F to G, is that which proceeds not only the Foreſhortning of the Plan; but alſo that which I call the Profile E. Wherefore in the oppoſite Pedeſtal of the ſame Figure, you'll ſee a contrary Diſpoſition of the whole.

I ſhall not here repeat, how the finiſh'd Pedeſtal is taken from theſe; having ſo largely ſpoken of that before; but briefly tell you, that the Angles of the firſt Out-line of the Profile E give the level Lines of the Face D, and the Angles of the Plan give all the Perpendiculars.

FIG. X.

Stylobata Doricus, & ratio vitandi difficultatem quamdam quæ occurrit inter illum opticè delineandum.

HIC oritur difficultas hæc, Veſtigium A *opticè tranſlatum in* C *adeò contrahitur, ut diſtinctè videri nequeat ubi collocetur circini pes, ut transferri poſſint perpendiculares ſtylobatæ adumbrati; totaque hæc difficultas oritur à propinquitate quam habet linea horizontalis, ſeu punctum oculi cum linea plani. Ut igitur illam vincas: Duces lineam plani inferiùs quantum libuerit, & ſuper illam feres denuò latitudinem, & longitudinem more ſolito, retinendo puncta oculi, & diſtantiæ* OF, *& ſic videbis veſtigia magis minuſve diſtincta; Veſtigium enim* E *diſtinctius eſt veſtigio* D, *&* D *diſtinctius eſt veſtigio* C.

A Dorick *Pedeſtal, with the Manner of ſhunning a Difficulty, which occurs in putting the ſame in Perſpective.*

IN this Figure a Difficulty ariſes, which is this; That the Plan A put in Perſpective in C, is ſo foreſhortn'd, that one can't ſee diſtinctly where to place the Compaſſes, for transferring the Perpendiculars on the ſhadow'd Pedeſtal; which is caus'd by the too near Approach of the horizontal Line to the Ground-line. For avoiding this Difficulty, draw another Ground-line as much below the firſt as you pleaſe, and carry the Breadth and Length thereon, after the uſual manner, ſtill keeping the ſame Points of Sight and Diſtance O and F: And according to the Removal of the Ground-line, the Plans will be more or leſs diſtinct; as you ſee the Plan E is more diſtinct than D, and D is more ſo than C.

FIG. XI.

Stylobata Ionicus, & ratio vitandi aliam difficultatem in elevationibus.

IN elevationibus etiam ſectionis opticè poteſt accidere, ut ſi viſualis LK *nimis recta ſit, ſectio* B *reſtringatur. Elongando lineam plani ab* L *ad* M, *viſualis* MN *erit inclinatior, & conſequenter ſectio* C *erit latior & diſtinctior.*

Nota, difficultatem hanc ſæpe ſæpiùs te habiturum in figuris præcipuè, quæ multas lineas habent, ut in figura quadrageſima ſecunda, ubi pariter rationem vitandi confuſionem reddam.

Neque tibi moleſtiæ ſim, quod in hac figura lineam horizontalem, infra lineam plani collocaverim, id enim feci, ut illarum diverſos effectus videas, utque tu in tuis ſtudiis mutes, & diſcas.

The Ionick *Pedeſtal, and the Way to ſhun another Difficulty in the Elevations.*

IN Elevations of the Profile in Perſpective, it may ſometimes happen, that the Viſual LK may be ſo direct, as to render the Profile B too cloſe and narrow; wherefore prolonging the Ground-line from L to M, make the Viſual MN, which being much more oblique, does conſequently render the Profile C more broad and diſtinct.

And obſerve that this Difficulty will very often occur; eſpecially in Figures that have many Lines, as the Forty Second Figure has, where I ſpeak alſo of the Manner to avoid the ſame.

Nor let it trouble you, that in this Figure I have plac'd the horizontal Line below the Ground-line; which I have done, that you might ſee their different Effects, and by changing the Diſpoſition of your Deſigns, improve and learn.

FIG. XII.

Stylobata Corinthius cum ſuis pilis.

FECISSE ſeptimam figuram magno tibi documento erit ad conſtruendem & dividendum ſtylobatam A, *& veſtigium* B; *cum nihil addere debeas præter pilas* C *cum coronice, quæ duo latera ambit. Opticè hoc veſtigium delineabis in* D, *quæ delineatio diſtinctior eſt, quia inferiùs duxi lineam plani; & diſtinctior etiam eſt ſectio* E, *cum elongaverim viſualem* FG. *Sic ſemper agam, ut detur locus figuræ adumbratæ, & ut etiam videas perpendiculares ſtylobatæ adumbrati cadere ſuper angulos veſtigii, & lineas planas incidere è diametro ſuper angulos ſectionis* E. *Iterùm libenter moneo, ut facias ſupradictas præparationes in chartulis ſeparatis, ut initio aſſueſcas transferendis figuris nitidis circino; facile enim tibi poſtea erit integras machinas Perſpectivæ jucundioris delineare, ut videbis: in hoc enim tota regulæ hujuſce, & totius operis facilitas ſita eſt.*

A Corinthian *Pedeſtal with its Pilaſters.*

THE Performance of the Seventh Figure will be a great Aſſiſtance to you, in the Conſtruction and Diviſion of this Pedeſtal A, and the Plan B; ſince you have nothing more to add here but the Pilaſters C, and the Mouldings which ſurround the two Sides. This Plan is put in Perſpective in D, and becomes more diſtinct by my ſinking the Ground-line lower; and the Profile E is alſo more diſtinct by the Removal of the Viſual FG, as mentioned in the foregoing Chapter. This I ſhall always do, that there may remain Room for the ſhadow'd Figure, and that you may alſo ſee that the Perpendiculars of the ſhaded Pedeſtal fall directly upon the Angles of the Plan, and that the level Lines directly anſwer the Angles of the Profile E. I repeat my Advice, that you would make the foreſaid Preparations on ſeveral Papers, and accuſtom your ſelf at the beginning, to take off the finiſh'd Figures with the Compaſſes; for it will become very eaſy to you afterward, to deſign entire Machines of delightful Perſpectives, as you'll ſee hereafter. And indeed in this Practice, the Facility of this Rule, and of all that follows in this Work, does chiefly conſiſt.

IN-

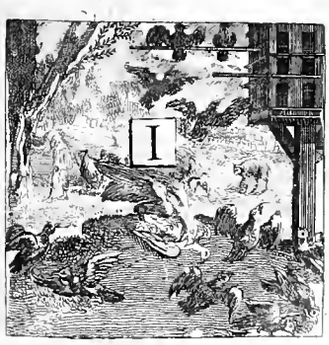
Reſpondetur objectioni factæ circum punctum oculi opticum.

Non omnium ſenſus eſt, uni optico operi unicum tantùm punctum aſſignare, *e. g.* toti ſpatio fornicis, tholi, & tribunæ, quam vocant, expreſſæ in figura nonageſimatertia, nolunt concedi unicum punctum, volunt concedi plura.

RESPONDEO, objectionem hanc dupliciter intelligi poſſe: vel enim intelligi poſſet, non eſſe aſſignandum unicum punctum toti illi ſpatio; atque in hoc ſenſu vera eſt; cum enim ſpatium illud valde oblongum ſit, dividi debuit in partes, atque aſſignanda tribunæ, quam dicunt, tholo, & fornici, propria puncta; cum hoc communiter doceant, ubi ſitus nimium eſt longus, & parùm altus. Vel poteſt intelligi de qualibet ex dictis partibus, & ſic intellecta penitùs falſa eſt. Primò, quia præſtantiores fornices aularum, & templorum, qui optico artificio ornati ſint, ſi unicum opus reddunt, à ſuiſmet authoribus determinatum idemque unicum punctum accepiſſe compertum eſt. Secundò, quia cum ars optica ſit mera veri fictio, non id pictor facere poteſt, ut à qualibet parte ſimulet veritatem, verùm ab uno determinato puncto id oſtendit. Tertiò, quia ſi, e.g. *fornici, qui uno integroque optico opere ornetur, plura puncta aſſignaveris, nullum reperies locum, unde integrum opus ſpectare poſſis, & ad ſummum ex quolibet puncto tantùm partem illius ſpectabis, nuſquam verò totum opus. Ex dictis igitur rationibus concludo ab inducentibus plura puncta in eodem opere induci malum majus eo, quod unicum punctum inducit; quare hoc omnino neceſſarium eſt ſitui in quo unicum opus formandum ſit, ad quod collimare debeant ex omni operis parte figuræ ſimul & architectura. Quo poſito, negari rationabiliter nequit, à me etiam concedi unicum punctum ſpectando fornici amplo, aptoque ad repræſentandum unicum opus, qualis eſt fornix in D. Ignatii templo. Si verò propter ſitum irregularem, ut dicimus, architectura extra punctum aliquantulum deformetur, & figuræ pariter operi optico intermixta extra commune punctum aliqualem patientur deformitatem, præterquam quod à ſupradictis rationibus excuſatur, nequaquam id vitio arti eſt, ſed laudi; quandoquidem ars à ſuo puncto exhibet, proportione poſitâ, ut rectum, ut planum, ut concavum, id quod tale non eſt.*

An Anſwer to the Objection made about the Point of Sight in Perſpective.

Every one does not approve, that in Perſpective of great Extent one Point of Sight only ſhould be aſſign'd the whole Work; as for Example, In the whole Length of the Nave, Cupola, and Tribune, expreſs'd in the Ninety-third Figure, they will by no means allow of one ſingle Point, but inſiſt upon ſeveral.



ANSWER, This Objection may be underſtood two ways; either that one Point alone is not ſufficient for that whole Length, and in this ſenſe 'tis true; for that Space being very long, it ought to be divided into Parts, and proper Points aſſign'd to the Tribune, Cupola, and Vault of the Nave; as is commonly taught, where the Situaton is of a great Length, and not very high. Or it may be underſtood of any One of the ſaid Parts, and ſo is altogether falſe. *Firſt*, Becauſe in the Vaults of Halls or Churches painted by the greateſt Maſters, if they conſiſt of one Piece only, we find but one Point of Sight aſſign'd. *Secondly*, Since Perſpective is but a Counterfeiting of the Truth, the Painter is not oblig'd to make it appear real when ſeen from *Any* part, but from *One* determinate Point only. *Thirdly*, Becauſe, if in a Vault, for Example, where you would paint one entire Deſign of Architecture and Figures, you aſſign ſeveral Points of Sight, you will find no place whence you may take a perfect View of the Whole, and at beſt you can only view each Part from its proper Point. From all which Reaſons I conclude, that the Introduction of many Points into the ſame Piece, is more injurious to the Work, than making uſe of one only: Wherefore 'tis abſolutely neceſſary in a regular Situation, and where the Work is all of a piece, ſo to place the ſame, as that the Figures and Architecture may from every part of the Deſign have reſpect thereto. This ſuppos'd, I confeſs that I myſelf make uſe of one Point of Sight only, in very large Vaults that conſiſt of one Deſign, ſuch as that of the Nave of the Church of S. *Ignatius*. If therefore thro' the Irregularity of the Place, the Architecture appear with ſome Deformity, and the Figures intermix'd therewith ſeem any thing lame and imperfect, when view'd out of the proper Point, beſides the Reaſons juſt now given, it's ſo far from being a Fault, that I look upon it as an Excellency in the Work, that when view'd from the Point determin'd, it appear, with due Proportion, ſtreight, flat, or concave; when in reality it is not ſo.

INDEX.

INSTRUMENTA paranda,	
Explicatio linearum plani & horizontis, ac punctorum oculi & diſtantiæ,	
Modus delineandi opticè quadratum,	
Optica delineatio rectanguli, alterâ parte longioris,	
Optica deſcriptio quadrati duplicis,	
Veſtigia quadratorum cum elevationibus,	
Modus opticæ delineationis abſque lineis occultis,	
Aliud exemplum veſtigii geometrici, cum elevatione longitudinis,	
Optica projectio ſtylobatæ,	
Optica delineatio Architecturæ Jacobi Barozzii, & primum de ſtylobata Ordinis Etruſci,	
Optica deformatio ſtylobatæ Dorici; ubi de modo vitandi confuſionem in veſtigiis delineandis,	
Stylobatæ Ionici deformatio; ubi de vitanda confuſione in elevationibus,	
Deformatio ſtylobatæ Corinthii, cum duabus pilis,	
Projectio ſtylobatæ Ordinis Compoſiti,	
Deformatio circulorum,	
Optica delineatio columnæ,	
Optica projectio baſis Etruſcæ,	
Deformatio baſis Doricæ,	
Optica delineatio baſis Ionicæ,	
Optica imminutio baſis Corinthiæ,	
Baſis Atticurga opticè imminuta,	
Optica imminutio capitelli Etruſci,	
Optica projectio capitelli Dorici,	
Deformatio capitelli Ionici,	
Optica projectio capitelli Corinthii,	
Optica deſcriptio capitelli Compoſiti,	
Deformatio coronicis Etruſcæ,	
Optica delineatio coronicis Doricæ,	
Præparatio figuræ ſequentis,	
Optica projectio ædificii Dorici,	
Optica projectio ædificii Ionici; ubi de modo jungendi fictum cum vero.	
Optica projectio coronicis Corinthiæ, cum capitello & ſummitate columnæ,	
Delineatio geometrica coronicis Ordinis Compoſiti,	
Deformatio coronicis Compoſitæ,	
Præparatio ad figuram trigeſimamquintam,	
Deformatio coronicis Compoſitæ ad latus inſpectæ	
Præparatio ad figuram trigeſimamſeptimam,	
Deformatio columnæ Etruſcæ,	
Præparatio ad figuram trigeſimamnonam,	
Deformatio ædificii Dorici,	
Veſtigium geometricum ædificii Ordinis Dorici,	
Elevatio geometrica ædificii Dorici,	
Modus vitandi confuſionem in contractione veſtigiorum & elevationum,	
Contractio veſtigii figuræ quadrageſimæ,	
Contractio elevationis figuræ quadrageſimæprimæ,	
Dimidium ædificii Dorici opticè deformati,	
Alterum dimidium ejuſdem ædificii,	
Veſtigia ædificii Ionici,	
Elevatio geometrica ædificii Ionici,	
Deformatio elevationis ædificii Ionici,	
Architectura Ionica,	
Ordo Corinthius,	
Delineatio columnæ ſpiralis Ordinis Compoſiti,	
Ordines Architecturæ deſumpti ex Palladio & Scamozzio.	

FIG.

	UTENSILS for Drawing.
I.	Explication of the Lines of the Plan and Horizon, and of the Points of the Eye and of the Diſtance.
II.	The Manner of delineating a Square in Perſpective.
III.	The Delineation of an oblong Square in Perſpective.
IV.	The Optical Delineation of a double Square.
V.	Plans of Squares with their Elevations.
VI.	The Manner of deſigning in Perſpective without occult Lines.
VII.	Another Example of a Geometrical Plan and Upright put into Perſpective.
VIII.	The Projection of a Pedeſtal in Perſpective.
IX.	The Architecture of *Vignola* in Perſpective, and firſt of his Pedeſtal of the *Tuſcan* Order.
X.	A *Dorick* Pedeſtal in Perſpective, with the Manner of avoiding Confuſion in deſigning the Plans.
XI.	The *Ionick* Pedeſtal in Perſpective, with the Manner of avoiding Confuſion in Elevations.
XII.	The *Corinthian* Pedeſtal, with its Pilaſters, in Perſpective.
XIII.	The Projection of a Pedeſtal of the *Compoſite* Order.
XIV.	Circles in Perſpective.
XV.	A Column in Perſpective.
XVI.	The *Tuſcan* Baſe in Perſpective.
XVII.	The *Dorick* Baſe in Perſpective.
XVIII.	The *Ionick* Baſe in Perſpective.
XIX.	The *Corinthian* Baſe in Perſpective.
XX.	The *Attick* Baſe in Perſpective.
XXI.	The *Tuſcan* Capital in Perſpective.
XXII.	The Projection of a *Dorick* Capital in Perſpective.
XXIII.	The *Ionick* Capital in Perſpective.
XXIV.	The *Corinthian* Capital in Perſpective.
XXV.	The *Compoſite* Capital in Perſpective.
XXVI.	The *Tuſcan* Entablature in Perſpective.
XXVII.	The *Dorick* Entablature in Perſpective.
XXVIII.	Preparatory to the following Figure.
XXIX.	A Projection of the *Dorick* Order in Perſpective.
XXX.	An *Ionick* Work in Perſpective, with the manner of reconciling the fictitious to the ſolid Architecture.
XXXI.	The Optick Projection of a *Corinthian* Cornic , with the Capital and part of the Column.
XXXII.	The Geometrical Deſign of a Cornice of the *Compoſite* Order.
XXXIII.	A *Compoſite* Cornce in Perſpective.
XXXIV.	Preparatory to the Thirty-fifth.
XXXV.	A Side-View of the *Compoſite* Cornice in Perſpective.
XXXVI.	Preparatory to the Thirty-ſeventh.
XXXVII.	A *Tuſcan* Column n Perſpective.
XXXVIII.	Preparatory to the Thirty-ninth.
XXXIX.	A Piece of *Dorick* Architecture in Perſpective.
XL.	The Geometrical Plan of a deſign of the *Dorick* Order.
XLI.	The Geometrical Elevation of the foregoing Deſign.
XLII.	The Manner of avoiding Confuſion in reducing Plans and Elevations into Perſpective.
XLIII.	The Plan of the Fortieth Figure in perſpective.
XLIV.	The Elevation of the Forty-firſt Figure in Perſpective.
XLV.	One half of the *Dorick* Deſign in Perſpective.
XLVI.	The other half of the ſame Deſign.
XLVII.	The Plan of an *Ionick* Building.
XLVIII.	Geometrical Upright of the foregoing *Ionick* Deſign.
XLIX.	The Elevation of the *Ionick* Deſign in Perſpective.
L.	A Deſign of *Ionick* Architecture.
LI.	A *Corinthian* Deſign in Perſpective.
LII.	The Deſcription of a wreath'd Column of the *Compoſite* Order.
LIII. A.	The Orders of Architecture taken from *Palladio* and *Scamozzi*.

Modus

INDEX.

Modus triplex delineandi columnas ſpirales,	Fig. LIII. B.	Three different ways of delineating wreath'd Columns.
Veſtigia ædificii Ordinis Corinthii,	LIV.	The Plan of a Deſign of the *Corinthian* Order.
Elevatio ædificii Ordinis Corinthii,	LV.	The Geometrical Elevation of a *Corinthian* Work.
Deformatio veſtigiorum & elevationis ædificii Corinthii,	LVI.	The Perſpective-Plans and Upright of the *Corinthian* Deſign foregoing.
Adumbratio figuræ ſequentis,	LVII.	The rough Draught of the following Figure.
Ædificium Ordinis Corinthii octangulare,	LVIII.	Part of an Octangular Work of the *Corinthian* Order.
Veſtigia Tabernaculi octangularis,	LIX.	The Plans of an Octangular Tabernacle.
Tabernaculum octangulare,	LX.	An Octangular Tabernacle in Perſpective.
Modus erigendi machinas quæ conſtant pluribus ordinibus telariorum,	LXI.	The Manner of erecting Machines that conſiſt of ſeveral Ranges of Frames.
De reticulandis telariis, quæ repræſentent ædificia ſolida,	LXII.	Of making the Net-work on Frames, for repreſenting the Architecture as ſolid.
Veſtigia ædificii quadrati,	LXIII.	The Plan of a ſquare Deſign.
Ædificium quadratum,	LXIV.	A ſquare Deſign in Perſpective.
Veſtigium ædificii rotundi opticè imminutum,	LXV.	The Plan of a Circular Work in Perſpective.
Projectio ædificii rotundi,	LXVI.	A Circular Deſign in Perſpective.
Veſtigium geometricum, ac prima præparatio ad figuram ſeptuageſimamprimam,	LXVII.	The Geometrical Plan, and firſt Preparation to the Seventy-firſt Figure.
Elevatio geometrica veſtigii præcedentis, & ſecunda præparatio ad figuram ſeptuageſimamprimam,	LXVIII.	The Geometrical Elevation of the foregoing Plan, and ſecond Preparation to the Seventy-firſt Figure.
Deformatio veſtigii figuræ ſexageſimæ ſeptimæ, & præparatio tertia ad figuram ſeptuageſimamprimam,	LXIX.	The Plan of the Sixty-ſeventh Figure in Perſpective, and third Preparation to the Seventy-firſt Figure.
Deformatio elevationis figuræ ſexageſimæ octavæ, & præparatio quarta ad figuram ſeptuageſimamprimam,	LXX.	The Perſpective of the Elevation of the Sixty-eighth Figure, and fourth Preparation to the Seventy-firſt.
Theatrum repræſentans nuptias Canæ Galilææ, conſtructum Romæ anno 1685, in expoſitione Ven. Sacramenti, in templo Farneſiano Societatis Jeſu,	LXXI.	A Theater repreſenting the Marriage of *Cana* in *Galilee*, erected in the Jeſuits Church at *Rome*, 1685, for the Solemnity of expoſing the Holy Sacrament.
De theatris ſcenicis,	LXXII.	Of Scenes for the Stage.
Aliud veſtigium theatri; ubi de modo inveniendi ejus punctum,	LXXIII.	Another Plan of a Theater, with the Method of finding the Point of Sight therein.
Sectio ſcenarum theatri,	LXXIV.	The Section or Profile of Scenes for Theaters.
Elevatio ſcenarum coram inſpectarum; ubi docetur artificium, ut ſcenæ obliquæ apparent rectæ,	LXXV.	The Elevation of Scenes in Front, and how the oblique Scenes are made to appear direct.
Modus delineandi exemplar ſcenarum,	LXXVI.	The Manner of delineating the Deſigns of Scenes.
Modus reticulandi & pingendi ſcenas theatri,	LXXVII.	The Manner of making the Net-work or Squares, and painting the Scenes of Theaters.
De projectionibus horizontalibus,	LXXVIII.	Of horizontal Projections.
Projectiones veſtigii & elevationis mutuli,	LXXIX.	The Plan and Elevation of a Corbel in Perſpective.
Horizontalis projectio mutuli inumbrati,	LXXX.	The horizontal Projection of a ſhaded Corbel.
Stylobatæ Corinthii horizontaliter contracti,	LXXXI.	*Corinthian* Pedeſtals in an horizontal Perſpective.
Columna Corinthia horizontaliter deformata,	LXXXII.	A *Corinthian* Column in horizontal Perſpective.
Capitella Corinthia horizontaliter contracta,	LXXXIII.	A *Corinthian* Capital in horizontal Perſpective.
Coronix Corinthia,	LXXXIV.	A *Corinthian* Cornice.
Coronix Corinthia horizontaliter contracta,	LXXV.	A *Corinthian* Cornice in horizontal Perſpective.
Horizontalis projectio columnæ,	LXXXVI.	A Column in horizontal Perſpective.
Præparatio neceſſaria ad ſequentem figuram, & ad projectiones horizontales in laquearibus vel teſtudinibus,	LXXXVII.	The Preparation neceſſary to the following Figure, and to all other horizontal Perſpectives, whether on flat or vaulted Cielings.
Horizontalis projectio baluſtiorum figuræ octogeſimæ ſeptimæ, cum brevi diſtantia,	LXXXVIII.	The horizontal Projection of the Baluſtrade of the Eighty-ſeventh Figure, viewed at a ſmall Diſtance.
Horizontalis projectio Architecturæ in laqueari quadrato,	LXXXIX.	A horizontal Piece of Architecture in a ſquare Cieling.
Horizontalis projectio tholi,	XC.	A Cupola in horizontal Perſpective.
Tholus figuræ nonageſimæ, cum luminibus & umbris,	XCI.	The Cupola of Fig. 90, with its Lights and Shades.
Tholus octangularis,	XCII.	An Octangular Cupola.
Veſtigium templi Ludoviſiani S. Ignatii almæ urbis,	XCIII.	The Geometrical Plan of S. *Ignatius*'s Church at *Rome*.
Orthographia templi Ludoviſiani,	XCIV.	The Orthography of S. *Ignatius*'s Church.
Aliæ præparationes ad figuras 98 & 99,	XCV.	Other Preparations to the 98th and 99th Figures.
Aliæ præparationes ad figuras 98 & 99,	XCVI.	Other Preparations to the 98th and 99th Figures.
Alia præparatio ad figuras 98 & 99,	XCVII.	Another Preparation to the 98th and 99th Figures.
Quadrans Architecturæ horizontalis in fornice, cum luminibus & umbris,	XCVIII.	Fourth-part of the Architectonical Deſign on the Vault of S. *Ignatius*'s Church, with its Lights and Shades.
Alter quadrans totius operis,	XCIX.	Another Quarter of the whole Deſign.
Modus reticulationis faciendæ in teſtudinibus,	C.	The Method of drawing the Net-work on Vaults.

FINIS.